The impact of past performance, firm capabilities and adaptation strategies on export performance: the case of Caribbean manufacturers

The impact of past performance, firm capabilities and adaptation strategies on export performance: the case of Caribbean manufacturers

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DECLARATION

This is to certify that the work presented in the thesis is only my own.

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04th May 2020

ABSTRACT

This thesis integrates organisational learning theory and resource-based view (RBV) to foster greater understanding of how past export performance, firm capabilities and adaptation strategies influence current export performance. It offers a new analytical lens through which the dynamic nature of international trade can be captured. The study was conducted among export manufacturers operating in the English-speaking Caribbean. The conceptual model was empirically tested using structural equation modelling techniques, and based on the responses of 274 export managers.

The findings reveal that firm capabilities mediate the relationship between past export performance and current export performance; and that relationship is moderated by adaptation strategy. Firms that register high levels of satisfaction with past export performance would go on to return high levels of satisfaction with current year export performance. However, part of the effects on current export performance are as a result of the learning derived from past outcomes which strengthens firms' confidence and commitment in their functional capabilities areas in the short term. The positive feedback loop encourages export managers to sustain these areas of advantage, which in turn goes on to positively impact current export performance. Adaptation in practices strengthens the impact of firm capabilities on current export performance where firm capabilities are low.

Additionally, the study also contributes to the body of the management and business literature with a new conceptualisation and measurement of export performance, as well as a new geographical context i.e., the Caribbean. Therefore, the results presented in this thesis have implications for the development of organisational learning theory, RBV, international business strategy and markets literature. Managerial and policy implications are discussed.

KEYWORDS: Capabilities, Organisational Learning, Adaptation, Export Performance, Caribbean, RBV, SEM

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"The heights by great men[women] reached and kept were not obtained by sudden flight, but they while their companion slept, were toiling upward in the night" were the words my great grandfather would say to me on a weekly basis when I was growing up in Dominica, a small island in the middle of the Caribbean. I only recently found out they were actually the words of the poet Henry Wadsworth Longfellow. While I had to make some personal sacrifices, I would not have been able to complete this journey without the help of many individuals: family, friends and academics.

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Lastly, I would like to note that I am solely responsible for all limitations and errors that may relate to the studies presented in this dissertation. I hope it will be fruitful and give some new and different insights into the topic of export performance.

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CHAPTER 1. INTRODUCTION

Globalisation is a significant challenge for Caribbean manufacturers as they strive to be competitive locally and internationally. Small countries with emerging market economies vulnerable to external events, have limited adjustment capacity and are particularly exposed to the effects of globalisation (Bernal, 2000; Kendall, 2007; Payne, 2007). Caribbean manufacturers have found it difficult to compete against global competitors and the relatively small size of the region as a market has done little to dissuade global competitors from markets in countries such as India, China and the United States (Peres & Stumpo, 2000). For example, between 1997 and 2006 the total share of the top 20 exported products from Caribbean manufacturers increased from 51 percent to 71 percent (ECLAC, 2012). Research suggests that the main reason for this is that while comparable markets in countries such as Singapore and Cyprus have based their economic policies on improving international competitiveness, while countries in the Caribbean continued decades of reliance on traditional markets, trade preferences, primary products (sugar and bananas), and exploitation of natural resources (Kathuria et al., 2005). Over time the declining impact of these economic policies, the pressures from globalisation and rapid changes in technology have reduced the international competitiveness of the region and increased interest in manufacturing areas of competitive advantage, as well as how they learn and adapt their practices (Takala et al., 2003; Carib Export, 2015; Grazzi & Pietrobelli, 2016).

To this end, this research project is going to draw on two theories to explore this empirical research problem. Organisational learning theory and resource-based view (RBV) will be used to advance the concepts of past export performance, firm capabilities and adaptation strategy as a valid approach to the conceptualisation and measurement of export performance among Caribbean manufacturers. This thesis posits that past representations of export performance fails to adequately capture export performance as it relates to firms or manufacturers operating in this geographical context. Similarly, international business literature provides limited representation on how manufacturers learn from past outcomes, the way that this learning influences their capabilities and commitment to current export performance whilst deploying adequate short-term adaptation strategies (e.g., Sousa et al., 2008). In other words, the thesis argues that the influence of past performance, firm capabilities and adaptation strategies offers a new analytical lens to studying export performance, which is more responsive to the

challenging nature of export-based international trade for manufacturers operating in the Caribbean.

A deeper understanding of export learning in the region of the Caribbean provides more clarity to the very complex and dynamic nature of international markets compared with domestic ones (Leonidou, 1995). The life span of most businesses tends to be relatively short, usually lasting no longer than the lifetime of a generation, as a result of the failure of firms to learn (Senge, 2006). A firm's ability to learn is crucial in developing its competitive advantage, yet empirical research is limited in regard to examining learning within exporting firms (Souchon, Sy-Changco & Dewsnap, 2011; Kaleka & Berthon, 2006). Export remains the most widely deployed international business strategy and form of foreign market entry globally (Peng, 2009; Yeoh, 2000), and examining ways to promote and sustain export growth through organisational learning perspective is critical for scholars, export practitioners, and export promotion firms alike (Lages et al., 2001).

More specifically, a firm's competence in international trade rests in a major way on its level of export-related skills, the learning that takes place and the knowledge that flows from this learning, hence export learning is of major importance (Seringhaus & Mayer, 1988). Yet, very little empirical research has been conducted to date on export learning, or its effects on firms' capabilities and performance within the export function. This area of research is important for this study as it presents firms with an empirical explanation of the role of learning from past outcomes to develop firm capabilities and current export success (Lages & Montgomery, 2004; Chung et al., 2019). This context is not fully understood in the international business literature, especially with a view to the specific case of Caribbean manufacturers where there is a relative decline in export competitiveness. This decline has not only led to a stagnation of export growth overall, but also yielded a reduction in the overall number of products being exported (World Bank, 2015; ECLAC, 2012). This study provides export managers and policy makers with an additional strand of evidence to enable them to develop and sustain successful international export ventures.

The organisational learning perspective requires firms to adapt their practices as a results of their learning (March, 1991). In this case, the theme regarding the differences between firms' goals, and results which influence managerial action and change, is built on in this study. Decisions concerned with whether a firm should adapt its practices for international markets, which ultimately may determine export performance, remains a

research area of interest for both academics and practitioners (Stoian, et al., 2011; Sousa, et al., 2008; Viswanathan & Dickson, 2007; Waheeduzzaman & Dube, 2004). The adaptation strategy element of this study provides a comprehensive, theoretically-founded understanding of the links between past export performance, capabilities and export performance. The organisational learning literature tends to reveal the importance of learning about a firm's environment as the basis for developing competitive advantage (Dickson, 1992; Lord & Ranft, 2000), however gaps persist in the international business literature on the combined effects of learning from past outcomes and adaptation strategy as it relates to firm capabilities and export performance (Montgomery et al., 2001; Lages, et al., 2008). In the context of Caribbean manufacturers, this approach provides a unique analytical lens for firms facing the competitive pressures of globalisation and less than effective economic policies as noted earlier. The organisational learning perspective helps determine the extent to which learning from past outcomes results in the use of adaptation strategies amongst manufactures, thus informing the overall understanding of how advantage is sustained in this exporting context.

Second, as the above suggests a foundational focus of this research project is the link between firm resources/capabilities and export performance within the Caribbean. Resource-based view (RBV) of firms considered herein was therefore used as a relevant theoretical lens. The RBV of firm plays a role in establishing the theoretical foundation of the link between firm capabilities and performance (Johnson et al., 2008; Barney 1991; Teece 2014). RBV is frequently used in management literature to understand the relationship between a firm's resources and/or capabilities and performance (Wernerfelt, 1984; Barney, 1986). Similarly, scholars have used RBV to explain the link between firm resources and/or capabilities and export performance (Madsen, 1987; Aaby & Slater, 1989; Zou & Stan, 1998; Sousa et al., 2008). In regards to the link between firm resources and export performance, the extant literature is substantial but shows an unstable relationship between these two, with important items returning conflicting effects on export performance. As a result, scholars are now turning to the higher-level measure of firm capabilities to explain export performance (e.g., Spyropoulou, Skarmeas, & Katsikeas, 2009; Navarro et al., 2010). Firm capabilities are described as complex bundles of skills and accumulated knowledge that enable firms to coordinate activities and make optimum use of their assets to create added value (Day, 1990). As the capabilities of firms take into account all their resources, research into the use of capabilities as an overall or higher order driver of export performance becomes important. This is due to the conflicting findings emanating from the resource only driver of the same (Sousa et al.,

2008). The literature indicates that firm capabilities are sparingly used as antecedents of export performance, even though they are the ultimate sources of firm advantage.

In the context of the Caribbean, governments are continuously looking for ways to devise more dynamic and competitive economies that would help deliver greater economic development and improved living standards. The contribution of Caribbean exporters would no doubt be central to this even though it may need to overcome challenges. In order to buck the trend in declining international export competitiveness, stakeholders will need to have a greater understanding and knowledge of export-specific internationalisation of Caribbean firms (Alleyne & Francis, 2017). Particularly, under the condition described above where there is an apparent double phenomenon of some manufacturers being able to sustain their areas of competitive advantage and performance, whilst others do not and instead follow a downward trajectory (Kathuria et al., 2005; ECLAC, 2014; ECLAC, 2012). This raises important questions not only around firm-level drivers of export performance, such as their specific areas of firm advantage, but also around their ability to learn and adapt to meet changing needs of international customers. Whilst a significant amount of research has been conducted on the export activity of firms internationally, there is limited information on the export behaviour of English-speaking Caribbean manufacturers in this respect (Sousa, et al., 2008).

Taken together, the shortcomings in the existing literature leave international business academics and practitioners, including those operating in the English-speaking Caribbean, with limited understanding in respect to the factors influencing export performance. In broad terms, in the quest to understand firm-level drivers of export performance, this study proposes that firms that register high levels of satisfaction with their past performance return high levels of current year export performance. This is in part because the learning from these outcomes would strengthen the firms' capabilities at least in the short term. However, where areas for improvement are highlighted, adaptation in practices would strengthen the impact of firm capabilities on export performance. Therefore, the underlying aspects of firm capabilities and adaptation strategy are driven by managerial action in their quest to improve performance. A greater understanding of export learning and its effect on firms' competitive advantage would certainly provide international business academics and practitioners with the strategic insights needed to enhance export performance (Lages, 2000; Lages, Silva & Styles, 2008). Although there have been initial investigations in the relationship between firm capabilities and export performance (e.g., Miocevic & Crnjak-Karanovic, 2011; Lages, et al., 2008), thus far, no

study has reported on the simultaneous effect of past performance, firm capabilities, adaptation strategies and export performance. In line with the abovementioned arguments, the study therefore asks the following research question:

RQ: *How do past export performance, firm capabilities and adaptation strategy interact to influence current export performance of Caribbean manufacturers?*

In order to help guide a response to the outlined research question, a number of more specific research objectives were outlined:

(SO1): To examine the extent to which past outcomes influences firms' capabilities, adaptation strategy and export performance;

(SO2): To examine the extent to which firm capabilities drive export performance amongst Caribbean manufacturers;

(SO3): To explore the extent to which the effects of past export performance on firm capabilities help drive current export performance;

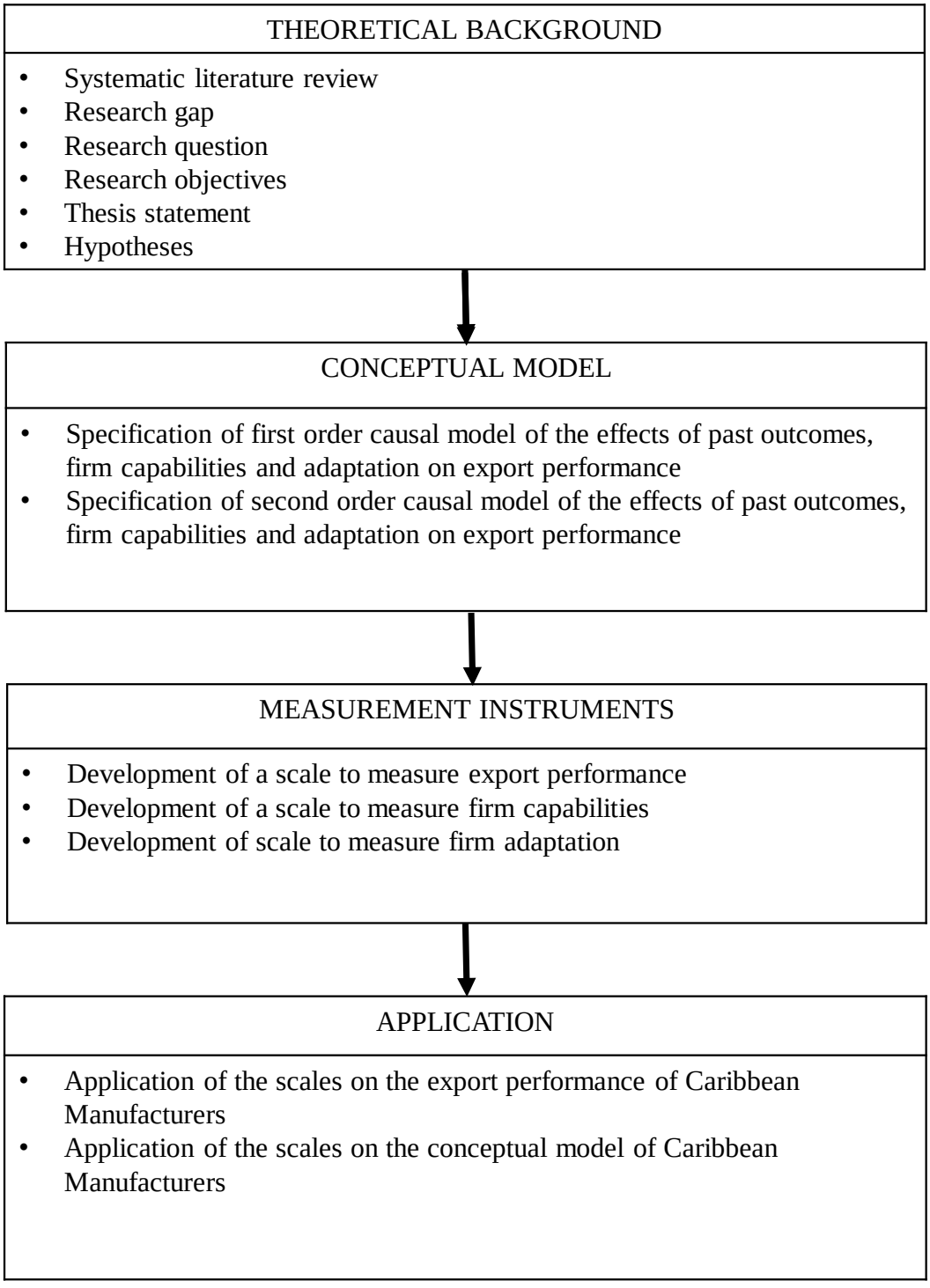
(SO4): To explore the extent to which the relationship between firm capabilities and export performance is weakened or strengthened by learning-based adaptation in firms' activities;

(SO5): To explore any variations in the overall export performance model for firms operating under differing condition of operations; and finally

(SO6): To inform the decision-making process of policy makers and managers in regard to exporting.

In regard to the methodological approach employed in this dissertation, a logical scheme of literature analyses was carried out followed by a series of empirical studies. A simplified scheme of the dissertation research process is presented in figure 1, followed by the overall structure of the dissertation.

Figure 1. 1 Research Process Scheme



Source: Own elaboration based on E.R Babbie, The Basics of Social Research, Wadsworth, Cengage Learning, 2011, p117.

This thesis comprises 7 chapters, including this introductory chapter, and a summary of their structure and content are outlined here. Chapter 2 provides a review of the literature on the determinants of export performance. The first part of the review involves an assessment of previous literature reviews covering the period of 1964 to 2005,

providing a historical overview in the understanding and operationalisation of the concept of export performance (Madsen, 1987; Aaby & Slater, 1989; Zou & Stan, 1998; Sousa et al., 2008). The next section contains a systematic review of 46 empirical studies published after 2005. The systematic review follows a similar methodology to that employed by Sousa et al., (2008) and its aim is threefold: firstly, to represent the state of the art in export performance research in the recent past, by describing the existing conceptual articles; secondly, to come up with a comprehensive list of factors that influences the concept of export performance; and thirdly, to unearth opportunities for new research.

Having established the gap in the literature, Chapter 3 presents the theoretical basis for the research, set out the conceptual framework and then develops the hypotheses going forward. The conceptual model depicts the interaction between past export performance, firm capability, adaptation strategy and current export performance. The current study looks to contribute to two theories: organisational learning and resource-based view (RBV). Aspects of organisational learning theory indicate that prior performance is an important source of exploitative and explorative learning (March, 1991). For firms this would be a key source of path confidence in the way they do business and add value, thus encouraging them to continue to invest and pursue their areas of competitive advantage. RBV theory indicates that firm capabilities are the source of competitive advantage as they are firms' intangible resources that are valuable, rare, imperfectly imitable and non-substitutable (Barney, 1991). The final model is a moderated mediation model, which at first, looks at several direct and indirect relationships. It posits that past export performance has both a direct and indirect effect on firms' export performance. The indirect element is denoted by the mediating role that firm capabilities play between said performance and export performance. The indirect relationship is then moderated by firms' adaptation strategies. Overall the model theorises that firms that register high levels of satisfaction with past performance would expect to return high levels of export performance, in part because this would lead to higher commitment in their advantage creating capabilities, which firms would look to sustain. In sustaining their capabilities, they would then positively influence export performance. However, the effects of firm capabilities on existing export performance would depend on the ability of these firms to adapt their capabilities to meet customer needs.

Chapter 4 outlines the methodological approach that were deployed to accomplish the research aims of this study. It develops the rationale behind the use of a modernist perspective with its objective ontology and epistemology. This positivist approach uses

deductive reasoning to develop and test the study hypotheses. Methodologically, a questionnaire was developed using an iterative process. In the first instance, the survey instruments were derived mainly from the extant literature with some adaptation to better meet the aims of the project. The questionnaire was pretested and piloted with the help of academics, industry professionals, and a sample of respondents. The study was conducted amongst export professionals in the English-speaking Caribbean. As a sample frame of these professionals did not exist, one had to be developed with the assistance of number of agencies in the region. This methodological approach then received ethical approval from Birkbeck, University of London. The overall number of firms in the English-speaking Caribbean that are exporters was unsurprisingly small given the small size of the economies and as a result they were all approached to take part in the study. In total about a quarter of firms responded. They represented firms with a good mix of international experience. They were mostly small and medium sized enterprise (SME) employing a maximum of 250 employees (OECD, 2005) and conduct greater proportion of their business in the Caribbean, Central and South America. The largest proportion of firms were based in Trinidad and Tobago (41%) followed by Jamaica (25%) and Barbados (12%) (See Appendix 5).

Once the data were collected, cases with a significant number of missing data and zero engagement were deleted using the thresholds set out by Hair et al., (2014). Missing data that could not be ignored, that is, those missing at random were replaced using a multiple imputation technique. Test for non-response bias revealed that this problem did not exist in the dataset. Early and late respondents were compared (using independent t test) and no significant difference existed between the characteristics of the group. The Harman's test for common methods bias (CMB) showed that this issue does not exist for the data. A single method factor was also used and that also returned no evidence of CMB. Data were analysed using structural equation modeling (SEM). The hypotheses were tested to meet the fulfilment of a moderated mediation framework. As SEM largely involves the use of latent variables in hypothesis testing, the reliability and validity of the items within these latent factors had to meet the minimum requirements for their inclusion in the same.

Chapter 5 presents the first of the two-step approach involved in undertaking structural equation modeling (SEM). The first approach deals with the measurement model or confirmatory factor analysis (CFA) phase of the SEM, whilst the second aspect deals with the structural model or hypotheses testing phase. The measurement model

attempts to define the relationship between observed and unobserved variables (Byrne, 2010; Czarnecka & Schivinski, 2019). In advance of conducting analysis for the measurement model, the scale items are defined and presented with accompanying evidence on their reliability. The scale items are obtained from the extant literature and only ones with excellent reliability scores were included in the conceptual model. This was determined by Cronbach's alpha or composite reliability scores that were greater than 0.70 (Hair et al., 2014). The measurement model was developed using only reflective variables rather than formative ones. Before conducting the confirmatory factor analysis, the data were further screened checking for normality, outliers and item purity. Normality test revealed that the data were normally distributed with all kurtosis scores falling within the minimum and maximum thresholds. Using the outlier labelling rule one case was deleted as the informant was viewed as being unengaged and also fell outside the rejection threshold of the rule. All observed items returned excellent internal reliability with their latent factors in line with the findings from the literature.

The baseline measurement model or CFA with all theorised items included returned reasonably strong 'goodness of fit' scores, with only two of the goodness of fit measures falling just below their minimum threshold for a study of this kind. Accepting that factors were strongly related, the model was then re-specified to help strengthen the goodness of fit measures. This was achieved by reviewing any issues that were present in the modification indices, standardised residual covariance and factor loading scores. Following this process, the model yielded much stronger goodness of fit scores with all constructs or latent factor maintaining at least four observed items. As *post hoc* multiple group analysis was carried out at the SEM phase (**SO5**), invariance tests were carried out in order to determine whether the models for firms belonging to low Research and Development (R&D) intensity industries and medium-high R&D intensity industries were invariant. Invariance means that differences in the findings between the groups would only be as a result of trait differences rather than measurement ones. The measurement model returned excellent convergent validity, discriminant validity and composite reliability scores, indicating that the items and their factors had good construct validity. A subsequent second order CFA model with an aggregated firm capabilities dimension also return adequate goodness of fit scores as well as excellent reliability and validity scores. The chapter ultimately shows that the measurement model fulfils all the necessary requirements for confirmatory factor analysis and provides evidence to suggest that there is a strong relationship between the observed and unobserved variables as

conceived in the conceptual framework and in turn these are well suited for the structural analysis or hypothesis testing.

Chapter 6 presents the structural model which was used to test all the study hypotheses. Before this analysis was conducted, it was important to check for any influential outlier observations and evidence of multicollinearity. Influential outlier observations tests returned one case with some unusual but comprehensible responses. As a result, the case was retained for analysis even though it could have been removed. No evidence of multicollinearity existed using moderate measurement test thresholds. Several control variables were introduced to the model and used to control the effects that some other possible significant variables could have had on the results. The controls were: types of markets (emerging/advanced); number of export markets; international experience; firm size; degree of internationalisation. Once the model was set up in AMOS, its appropriateness as a model to adequately test the hypotheses was determined by reviewing a series of global to local tests; that is, first checking for overall goodness of fit, R squared and then *p*-values. In all cases these measures were deemed adequate and the results for the hypotheses were accepted. Where hypotheses were rejected, further post-hoc statistical power tests were carried out to determine the chances of actually deriving an incorrect result given the dataset.

The majority of the hypotheses were supported by the data even though *post hoc* multiple group analysis revealed some variation in results between firms operating in low R&D intensity industries (161 cases) and medium-high R&D intensity industries (107 cases). More specifically, past export performance significantly and positively influenced firm's technology, information technology, marketing and market linking capabilities, and current export performance (**SO1**). Marketing capabilities positively and significantly influenced current export performance while technology and marketing capabilities had no significant impact. Information technology returned an unanticipated negative and significant impact on current year export performance (**SO2**). The indirect effect of past export performance on current export performance through firm capabilities was positive and significant for marketing capabilities. Conversely, it was negative for information technology capabilities and non-significant for technology and market linking capabilities (**SO3**). Aggregated firm capabilities also mediated the link between past export performance and current export performance. Adaptation strategy moderates the impact of technology, information technology, marketing and market linking capabilities and current export performance in that, when capabilities are low, adaptation

strategy strengthens their effects on performance (**SO4**). Adaptation strategy was also shown to have an inverse relationship with current export performance. That is, when satisfaction with export performance is low, adaptation levels tend to be high and vice versa. The hypotheses were tested with the application of control variables, with market type returning a significant impact on current export performance with number of export markets, firm size, international experience and degree of internationalisation returning no significant impact.

The seventh and final chapter contains a discussion of the findings and the conclusions of the study. It discusses the study's contribution to the existing body of international business strategy and, more specifically, of export performance research. In the process, it highlights a few relevant methodological issues and limitations and examines the leading managerial and policy implications of the findings. The chapter concludes by suggesting some important directions for future research.

The resulting contribution of this dissertation to the extant literature related to export performance are the following: (i) Theoretically, the study adopted the organisational learning perspective to consider current export performance as a function of firm capabilities, past export performance and adaptation strategy. The central thrust of the study was that firm capabilities mediate the link between past export performance and current export performance and that relationship is moderated by firms' adaptation strategies (e.g., DeSarbo et al., 2007; Lages et al., 2008; Chen, Sousa & He, 2016; Ramsey et al., 2016; Chung, et al., 2019). The results confirm that in the short term, the effects of past export performance on current export performance is indeed mediated by firm capabilities. (ii) Given the increased tendency towards the globalisation of the world's markets, export involvement becomes of crucial importance for firms' survival and growth, and adaptation strategies have a significant influence on firms' export performance (Lengler & Martinez-Lopez, 2014). The debate regarding whether firms should adapt or standardise their activities and processes, from both a theoretical and empirical perspective, represents a key issue for achieving successful and sustained export results (e.g., Leonidou, Katsikeas & Samiee, 2002; Miles et. al., 1978; Stoian et al., 2011; Miles et. al., 1978). In light of the findings of this empirical investigation, successful export performance can be achieved through employing a more adapted or flexible strategy overall, especially when advantages derived from firm capabilities are low. This study contributes to the extant international business literature by showing that

a firm's adaptation strategy is an important moderator of the relationship between its capabilities and current export performance.

Additionally, (iii) on the whole, the findings partially corroborate RBV theory with results showing that firm capabilities have a positive and significant impact on export performance (e.g., Vorhies, Orr & Bush, 2010; Ferreira & Simões, 2016). In the case of Caribbean manufacturers, an empirical context not yet studied by the literature, only marketing capabilities were shown to have a significant and positive impact on current export performance with technology and market linking capabilities yielding non-significant results, and information technology returning a negative impact. The contribution to RBV theory is quite significant in that it shows firm capabilities are an important driver of export performance but that the area(s) of competitive advantage contributing to this positive influence on performance may vary from firm to firm. (iv) By bringing together organisational learning and RBV theories to the international business literature, this study has successfully answered the (**RQ**) and introduced a new model to help explain the export performance of firms. The model theorises that firms that register high levels of satisfaction with past export performance would return high levels of current year export performance. This is in part because the learning from these past outcomes would increase commitment to firms' capabilities, at least in the short term. Firms would in turn look to sustain these capabilities or areas of advantage, so that they could go on to positively influence current export performance. However, where areas for improvement are highlighted, adaptation in practices would strengthen the impact of these capabilities on export performance where they are low.

In regard to the studies management implication (**SO6**), the model presented in this study helps managers to systematise the complex export phenomenon and, simultaneously, help to improve their expertise and enhance their ability to protect and perform better in foreign markets. (i) The results suggest that firm capabilities and current year export performance in the short term are strongly influenced by firms' past export performance levels, which highlights the importance of firms closely monitoring and accommodating any unsatisfactory past outcomes (e.g., Navaro et al., 2010). Managers should look to adopt a clear and robust adaptation strategy in order to sustain their export venture especially for firms operating in medium-high R&D intensity industries, as *post hoc* analysis reveals that the adaptation of firms' activities for those operating in low R&D intensity industries do not influence current export performance. (ii) In the context of the Caribbean, the results suggest that export performance is strongly influenced by

firms' capabilities but none more so than marketing capabilities. Therefore, taking decisions to increase the actual level of firm's marketing capabilities in the exporting area will have a significant impact on export performance. Managers should be conscious that a fundamental role in achieving superior export performance would significantly depend on a firm's marketing capabilities. (iii) The literature reveals that concentrating on firm resources and competences tend to yield conflicting results when it comes to export success (e.g., Sousa & Bradley, 2008). Managers should ensure that they identify their areas of competitive advantage or capabilities (e.g., market linking, information technology, marketing and technology) with the greatest impact on export success as these will have to be cultivated to develop and sustain their export venture. When marketing capabilities are the strongest driver of export success, export managers should work to structure their export activities around that strength. By structuring the internal relationships in this manner, export managers would create the optimum business environment in which to operate.

With respect to the policy implication (**SO6**), policy makers should develop global initiatives to help manufacturers sustain their export competitiveness over the longer term. (i) While the initiatives should be both exploitative and explorative (e.g., March, 1991), there is some benefit in exporters continuously learning from the environment to help refine their existing knowledge, in order to effect change in the short term. Where that is not already the case, policy makers can create a centralised information or intelligence repository for exporters while at the same time encouraging them to adapt their activities, where necessary or appropriate, to sustain their export ventures. Policy makers should also concentrate on improving the ability of local firms to learn from past outcomes and help develop their adaptation skills and competences. Individual governments can also look to encourage research and development spending (e.g., through tax breaks) particularly among firms operating in more R&D intensity industries. (ii) Marketing capabilities were shown to be the most important capability-based driver of export performance. Policy initiatives should aim to enhance the marketing skills and competences of key decision makers to enable firms to formulate and successfully put into practice international marketing strategies. Thereby, the promotion of marketing skills and competences, which are already pursued in both educational institutions and workplaces, should receive increased and continuous policy support in order to ensure that future decision makers have the right skills and competences to augment and sustain their international export propensity.

Although this study provides several new insights, it is important to note its limitations. The future research directions will be addressed in the context of, and as extensions to, the limitations. (i) This study employed a cross-sectional survey method, and therefore suffers from the common limitations of the method for example, cross-sectional design, and common method. Future research should seek to overcome this limitation. (ii) The research context limits the findings. The fact that the research context involved only firms operating in the English-speaking Caribbean may limit the generalisability of the results. However, small island states with emerging market economies in situations like those of the Caribbean may also benefit from the findings. (iii) Firm capabilities could have been conceptualised differently, that is other than market linking, information technology, marketing and technology capabilities used, other areas of firm capabilities can be explored to see how they influence export performance. (iv) This study is based on self-reported survey data (i.e., subjective performance data). Despite the clear advantages of such method and type of data, further research should seek to gain access into objective data (e.g., Sousa & Bradley, 2008).

Extending beyond the limitations, this study provides a foundation for significant further research endeavours to advance the field. For example, this study has shown the empirical link between past years export performance, firm capabilities, adaptation strategy and current export performance. However, researchers can further investigate these links. For example, through considering how strategy is affected in the short term, this study provides insight into the building blocks of long-term learning and its role in sustaining competitive advantage. In the short term, satisfaction with export performance tends to be perpetuated, so that negative past performance satisfaction leads to negative current performance satisfaction, and vice versa. The findings from this study show that it is possible through firms' capabilities and their short-term adaptation to break a negative cycle, particularly as adaptation strategy registered an inverse relationship to current export performance. However, it is possible that a more granular look at adaptation strategy unearth a greater or lesser effectiveness of certain aspects of marketing mix, production or technology activities.

A final possibility to extend this work further is to reconsider the conceptual framework. The conceptual model presented here builds on key studies in international business literature to generate a conceptual framework. Necessarily, the number of capabilities-based antecedents is small and finite, and other antecedents and outcomes of export performance may need to be explored in future research. As empirical research

aiming to validate these relationships is only emerging, scholars should seek to further validate the relationships that link past export performance, firm capabilities, adaptation strategy and current export performance. More specifically, studies could look to explain how positive or negative components of past export performance individually affect firm capabilities and their adaptation and current export performance. As practitioners and policy makers look for approaches to sustain export performance, it is hoped that findings from this study will encourage future researchers to continue to reflect on the importance of the links between past export performance, firm capabilities, adaptation strategies and current export performance.

CHAPTER 2. EXPORT PERFORMANCE – CONCEPTS AND DETERMINANTS

The aim of this chapter is to provide a review of the literature on the determinants of export performance. The first part of the review involves an assessment of previous authoritative literature reviews covering the period of 1964 to 2005, providing a historical overview of the understanding and operationalisation of the concept of export performance (Madsen, 1987; Aaby & Slater, 1989; Zou & Stan, 1998; Sousa et al., 2008). The next section contains a systematic review of 46 empirical studies published after 2005. The systematic review followed a similar methodology to that employed by Sousa et al. (2008) and its aim is threefold: firstly, to represent the state of the art in export performance research in the recent past, by describing the existing conceptual articles; secondly, to come up with a comprehensive list of factors that influences the concept of export performance; and thirdly, to unearth opportunities for new research.

With regard to the comprehensive list of factors, a list of factors was placed in a resource-based framework where the determinants of export performance were categorised under three resource headings; physical, human capital and organisational capital. The chapter ends by identifying several key gaps in the understanding of export performance under the guidance of this study's research aims and objectives. Specifically, it highlights gaps in areas such as: the role of past export performance as a driver of current export performance; how that relationship in part is mediated by firm capabilities; firm capabilities as driver of export performance; the moderating effects of adaptation strategy on the relationship between capabilities and performance; and the need for more research in regions with emerging economies such as the Caribbean.

2.1 Determinants of export performance: a historical overview

Academic research into firms that engaged in international trade started in the sixties, which at the time, focussed primarily on the behaviour of exporting firms rather than their performance. Bilkey in 1978 performed a literature review of over 43 export-related studies and found only four looked to explain the export performance of firms. Interestingly, these four which studies viewed successful exporters as those businesses that were active in international markets and those that were inactive were considered as unsuccessful. This very simplistic view of export success at the time did not take into account the scale of foreign activities of exporters or the effectiveness of their operations.

As international trade increased in the eighties and nineties, an increasing number of researchers tried to develop ways of explaining firms' export performance. Following from this, researchers used the findings from these studies to develop generalised frameworks and/or theories of export performance. The key contributors to framework development were Madsen (1987), Aaby & Slater (1989), Leonidou, Katsikeas & Samiee (1998), Zou & Stan (1998), and latterly Sousa, Martínez-López and Coelho (2008). These researchers, consulting studies from 1964 to 2005, made significant contributions to theory development and to our wider understanding of the antecedents of export performance. The studies mentioned here are by no means an exhaustive list of reviews, but those selected herein share a generalised outlook. For instance Leonidou, Katsikeas & Samiee (1998 & 2002) are excluded, since as their main focus rested solely on the management and marketing strategy determinants of export performance respectively. The following sections will discuss the most important outcomes and limitations from these reviews. It will also draw attention to the extent to which research in this area is resource and/or capabilities-focussed.

In 1987, Madsen published his review on the antecedents of export performance, which utilised a modified version of the Strategy-Structure-Performance (SSP) theory. The findings from the review were inconclusive because while most of the variables fell within the study framework, they returned very mixed results with regard to their impact on performance. The review included 17 studies whose data were collected between the years of 1963 and 1984. Madsen deployed a SSP framework which indicated that the performance of a firm (O-performance) is as a result of ongoing interactions with its organisational structure (O-structure), the structure and performance of the environment (E-structure) and its strategies (strategy). In total, the operationalised variables were classified as indicators of 23 concepts (latent or unobservable), which were then placed

into three framework categories (see Table 2.1) and reported on their influence on varying aspects of export performance. The results were, on the whole, inconclusive with concepts yielding both positive and negative association with varying aspects of export performance. It is worth noting that the framework deployed falls into a comprehensive resource-based framework. For example, E-structure can be associated with physical resources, O-structure in part human capital resources and Strategy again in part organisational capital resources as the latter two resource groups are more comprehensive. The review provided a strong framework for collating drivers of export performance, but antecedents showed conflicting influence on export performance.

Table 2. 1 – Adapted from Madson (1987, pp. 184 - 185): Review findings

SSP Framework	**Concepts**	**O-performance (export profitability, export sales, export growth)**
Strategy	Adaptation of marketing policy	E+ (1), G+ (1), S+ (3), S- (1), O (1)
	Channel support	P+ (3), S+ (2), G+ (1)
	Communication intensity	E+ (2), P+ (1), S+ (3)
	Internalisation marketing function	E (1), P (2), S (2), S+ (1), O (4)
	Market research intensity	E+ (1), S+ (4), O (4)
	Marketing concentration	P+ (1) P- (1), S (1), S+ (1), G (1), G- (1), O (2)
	Planning & control intensity	E+ (1), O (2)
	Price competitiveness	E+ (1), P- (2), S+ (2), O (2)
	Product strength	E+ (1), P+ (1), S+ (6), O (2)
O-structure	General company resources	P- (1), S+ (4), G- (1), O (5)
	Knowledge export marketing	P- (1), E+ (1), S+ (4), S- (1), G- (1), O (3)
	Management support	E+ (2), P+ (1), S+ (5), O (2)
	Status export organisation	E (1), P (2), S (2), O (4)
	Technological intensity	E- (1), S+ (3), G+ (1), O (2)
E-Structure	Domestic market attractiveness	P- (1), G+ (1), S (,1), S- (1)
	Export market attractiveness	P+ (2), S+ (2), G+ (1), O (3)
	Physical distance to market	P- (1), G+ (1), S+ (1), S- (4)
	Psychological/cultural distance	P- (1), S- (2)
	Trade barriers	P- (1), S- (2)
	Type of market	O (4)

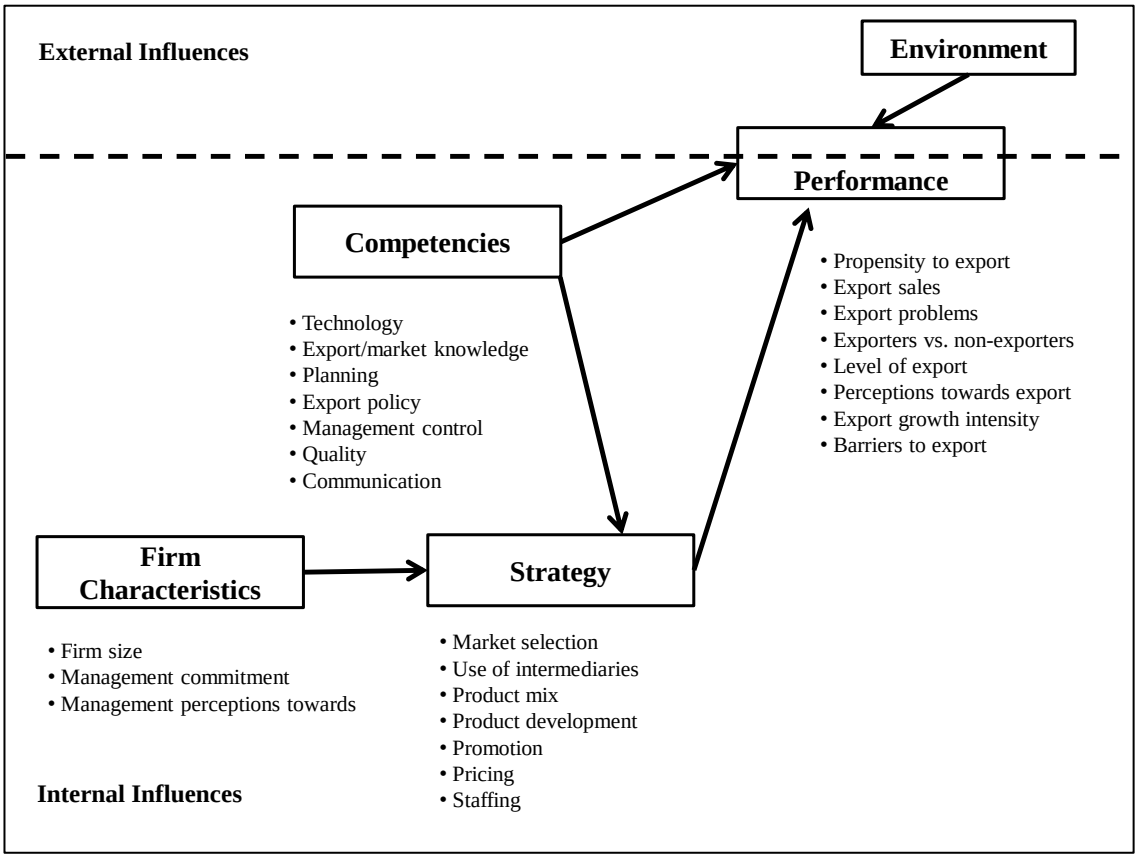
E/P/S/G = Export success in general/Profitability/Sales/Growth
O = No (or very weak and unstable) association reported
+/- = positive/negative association reported;
No [+ or –] = direction of found association is not clear
In parentheses, the number of times the respective association was reported.

Madsen (1987) review highlighted a few limitations at the time that existed in the research of export performance. The limitations were centred on the simplistic nature of the studies as they did not take into account the complex link between export performance and its antecedents. The review unearthed specification errors meaning that concepts were

not easily allocated to the framework, in this case the SSP. The studies also lack the sophistication to test for causal links between variables which Madsen indicated was the inability of the studies to cope with measurement error problems. Further studies at the time lacked interaction effects between antecedents in the data analysis, meaning that the studies merely investigate the univariate direct effects of these determinants on performance. He also noted then that future researchers needed to investigate directional causality. In other words, researchers needed to look at the longitudinal effects of variables on changes in export performance. This would require research of time series data in addition to the exclusively cross section data that were available at the time of the review. The review made an important contribution in establishing a framework for categorising antecedents of export performance, but the relatively simplistic nature of the studies at the time restricted its ability to propose an all-encompassing theory of export performance.

At around the same time as Madsen's review, Aaby and Slater (1989) embarked on a review of the extant literature on export performance. The review was robust as it consulted a large number of articles representing a decade of research and proposed a model for future research. The review proposed a "Strategy Export Model" framework for the nomenclature of variables and concepts, which was in part successful at categorising the existing variables at the time. However the framework ran into the same challenge as Madsen: an inability to provide conclusive drivers of export performance. The review took into account 55 studies that were conducted between the years 1978 and 1988. The framework grouped variables into four independent variables, which were strategy, competence, firm characteristics (firm and management) and the environment (Figure 2.1). The latter was an important introduction, but the review only took into account aspects of the environment that were controllable by managers. Aaby and Slater (1989) intimated that individual exporters had limited influence on the environment and viewed it in most cases as a constraint to trade, thus providing only an acknowledgement of the issue. The review has been cited more than 700 times in the literature indicating its contribution to export performance literature. Indeed, researchers such as Styles & Amber (1994) and Chetty & Hamilton (1993) used the framework to carry out further reviews. Readers should also consult these reviews separately as well as the core reviews that are being discussed here.

Figure 2. 1 Adapted general Model for Assessing Export Performance and Variables



As in the case of Madsen, the Aaby and Slater's review was inconclusive in its findings due to mixed results and research design limitations. They called for a more comprehensive measure of export performance, indicating that export sales were insufficient and other aspects such as profitability should be considered. It was not easy to determine causal link, as all the data were cross-sectional and longitudinal data were not available, hence greater care was needed to develop valid and reliable constructs. That said however, the review posited a number of conclusions on the relationship between certain antecedents and export performance. Contrary to a developing consensus at the time, they indicated that firm size in and of itself is not a driver of export performance and that it is should be linked to financial strength or economies of scale. They were able to report that management commitment is a positive driver of export performance meaning that the greater a firm commitment to foreign markets the greater the export performance.

Firms that plan and have international experience, they indicated, tended to have better performance than those that did not. Importantly they noted at the time that higher order resources have a greater impact on export performance than low order resources.

For example, firm competences would influence performance to a larger extent than say firm characteristics. Aaby and Slater also noticed at the time that technology on its own is not necessarily a driver of export performance and that its effect on performance is largely driven by management. The review developed a framework which was robust and an alternative to Madsen (1987), but the antecedents within their reviews continued to return similarly conflicting effects on export performance.

Zou and Stan (1998) published a review that lent support and extended previous reviews by Aaby & Slater (1989) and Chetty & Hamilton (1993). Particularly, the review sought to look more closely and incorporate the role of the environment in determining levels of export performance. It looked to bring together two areas of theory: the internal, based on resource-based theory, and the external on industrial organisation theory. The latter indicated that external factors contributed to strategy development and therefore should influence performance (Scherer & Ross, 1990). The review was based on 50 studies published between the years 1987 and 1997. The determinants were sub-divided into internal versus external and controllable versus non-controllable variables, thus a 2 x 2 model. Conceptually, the internal variables were clustered into five broad categories: export marketing strategies; management attitudes and perceptions; management characteristics; firm characteristics; competence. The external variables were categorised into three groups: industry characteristics; foreign market characteristics and domestic market characteristics (see Table 2.2). Again, as was the case for previous reviews, the antecedents were relatively easily framed within the broad theoretical categories, but the measures continue to yield inconclusive results in most cases. Only in three cases were decisive results reported: general export strategy, export commitment and support had a positive association. Export performance and price determination proved to have no significant impact. In particular, the environment, a key area of interest for this review, affected export performance in a non-consistent way with most variables yielding non-significant results. They concluded that variables such as environment could probably be defined as having a direct or indirect or both impact on export performance.

Table 2. 2 – Zou and Stan Framework

	Internal		External	
	Independent variables	**+ - 0**	**Independent variables**	**+ - 0**
Controllable	**Export Marketing Strategy**			
	General export strategy	**12_1_0**		
	Export planning	19_3_12		
	Export organization	13_0_13		
	Market research utilization	6_1_6		
	Product adaptation	12_2_13		
	Product strengths	13_2_27		
	Price adaptation	7_1_6		
	Price competitiveness	3_0_7		
	Price determination	**0_0_11**		
	Promotion adaptation	3_3_2		
	Promotion intensity	15_2_11		
	Distribution channel adaptation	2_1_6		
	Distribution channel relationships	9_0_17		
	Distribution channel type	5_4_8		
	Management Attitudes and Perceptions			
	Export commitment and support	**15_0_2**		
	International orientation	10_0_6		
	Proactive export motivation	1_0_4		
	Perceived export advantages	11_0_8		
	Perceived export barriers	1_6_9		
Uncontrollable	**Management Characteristics**		**Industry Characteristics**	
	Mgt. international experience	15_1_10	Industry's technological intensity	4_0_1
	Mgt. education / experience	11_3_20	Industry's level of stability	2_0_1
	Firm's Characteristics and Competencies		**Foreign Market Characteristics**	
			Export market attractiveness	6_3_12
	Firm's size	9_5_23	Export market competitiveness	1_0_5
	Firm's international competence	12_3_7	Export market barriers	1_3_8
	Firm's age	0_3_3	**Domestic Market Characteristics**	
	Firm's technology	7_1_11	Domestic market	2_2_6
	Firm's characteristics	4_1_1		
	Firm's capabilities / competencies	20_3_21		

The review also highlighted some problems inherent within the export performance literature because inconsistencies persisted in the conceptualisation and research design. Zou and Stan (1998) found frameworks that provided competing explanation of export performance particularly between those that are based on industrial organisation theory (IO) and resource-based view theory. The latter posited that potential antecedents of export performance have a direct effect on export performance, whereas IO based studies posited that export performance is mainly determined by export marketing strategy and everything else is indirect. They also noticed at the time little consistency in the measurement of export performance and agreement on the relevant antecedents of performance and their measurement. In regard to research design, they highlighted challenges around the unit of analysis, which is still ongoing today, on

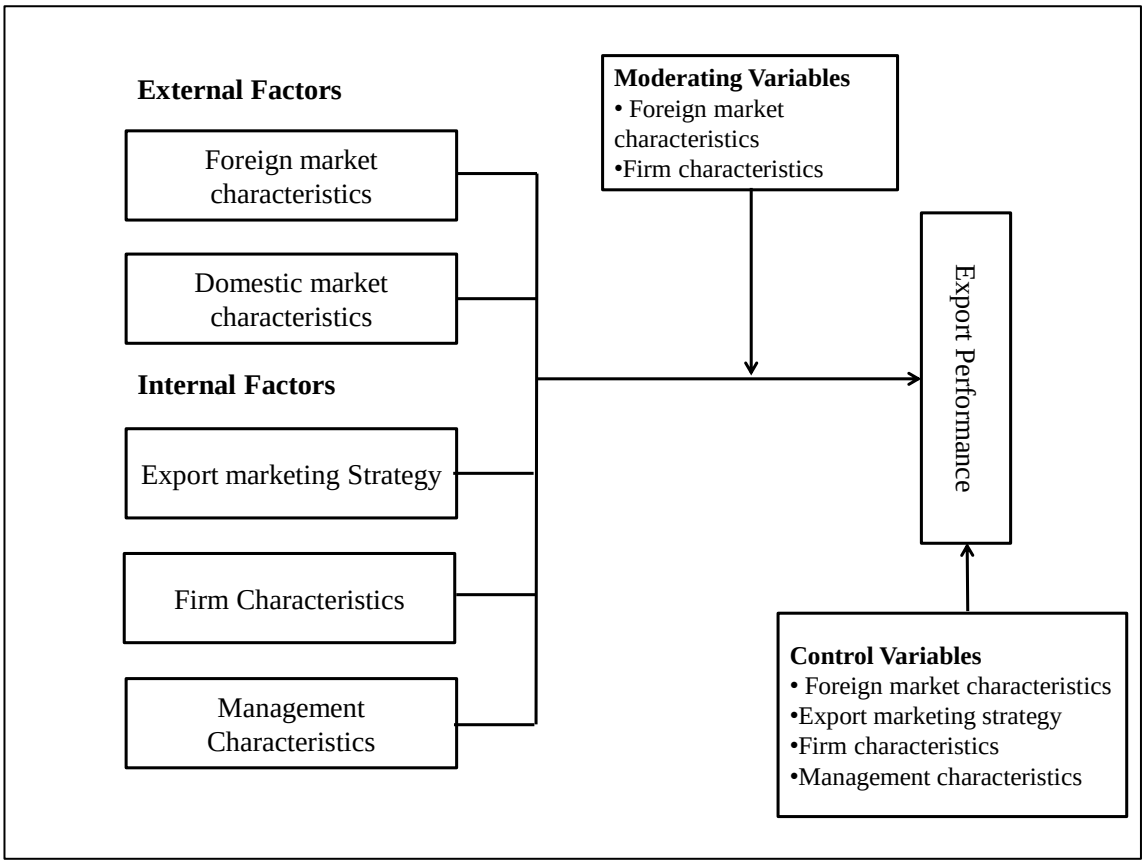
whether the firm or venture is the most appropriate unit. Additionally, they proposed that control variables (firm size particularly) should be used in data analysis to mitigate the impact of bias. They suggested, in the case of multivariate data analysis, that researchers should provide full reports on sample size, variances and test statistics in order to aid the variability of results. Notably, the review only reported on the direction of impact (positive or negative) and groups of the variables impacting export performance, but did not go as far as proposing a conceptual framework itself. In 1998, this review showed that theory development about export performance had made significant strides, but conceptual and methodological challenges persisted, inhibiting progress to a more generalised framework.

Sousa et al. published their review in 2008 levelling similar criticisms as previous authors, indicating that the literature on export performance continued to be fragmented, diverse and inconsistent. The review introduced a framework that was more complex than previous ones because it included moderating and control variables in an attempt to more accurately model the export performance of firms. The review covered 52 studies published between 1998 and 2005 and was centred on two theoretical approaches: resource-based view and contingency theories. Sousa et al. 2008 dropped the IO theory employed by Zou and Stan (1998) to explain the external factors and instead used contingency theory.

The conceptual framework emanating from the review posited linkages between external factors (foreign market characteristics and domestic market characteristic) and internal factors (export market strategy, firm characteristics, management characteristics and export performance). Sousa et al. 2008 explored more closely the concept of moderating and control variables in explaining the relationship between export performance and its determinants. The moderating variables in the conceptual framework were presented as foreign market and firm characteristics and the control variables were foreign market characteristics, export market strategy, management and firm characteristics (Figure 2.2). A more detailed discussion on moderating and control variables is provided in the research method chapter; notably, control variables were indicated as necessary to reduce error terms and increase statistical power (Schwab, 2005) whereas moderating variables affected the direction and strength of relationships between export performance and its antecedents (Sharma, Durand & Gur-Arie, 1981). Given the mixed results that are returned for individual variables and export performance, this model introduced two important elements to help stabilise some of these relationships by

raising awareness to issues around unwanted bias, and the direction and strength of associations.

Figure 2. 2 Framework for determinants of export performance



In addition to the points raised on control and moderating variables, Sousa et al. (2008) mentioned a number of unresolved challenges going forward. As with Zou and Stan (1998), they requested greater consensus on certain aspects of research methods and approaches because of the wide variations that persist in the literature. The review revealed that the level of analysis was mixed across research projects, with some studies using the firm and others using the export venture. However, the majority of research studies use firm level data indicating that a consensus is developing for firm level data rather than venture. This is also linked to the number of informants per firm, with Sousa et al. (2008) reporting that most studies used single rather than multiple informants and that the issue of the unit of analysis was yet to be agreed in the literature, thus requiring more theory development. They indicated that the quality and sophistication of the studies continued to improve with studies obtaining larger sample sizes (mean sample size of 260 compared with 173 in Zou and Stan 1998) and using more complex statistical procedures. The geographical spread of studies was increasing, but more research in other parts of the world was required. Indeed, they noticed a gap in the literature in certain parts of Asia,

South and Central America, the Caribbean and Africa. The review also requested that more single industry research was required, since most studies were based on multi-industries. Similarly, more research was required in large firms. In regard to the framework, a challenge for future researchers would be to simplify the complex interplay between antecedents, moderating and control variables. It appears from the framework that any variable can play any role instead of its principal role and hence more easily achieve consensus in theory development. This review revealed greater sophistication in research design, but left unresolved issues around level of analysis, number of informants, number of industries and cross-cultural studies.

In summary, the literature on export performance has not managed to settle on a theory of export performance. Reviewers can categorise the drivers of export performance into varying frameworks, but these have done little to produce drivers that have a consistent impact on performance. Rightly, studies introduce the environment into the mix of factors that not only may impact performance directly, but also the relationship between performance and its antecedents. At the same time, studies started deploying more complex forms of analyses moving away from univariate to the multivariate and factor data analyses. These more complex forms of analysis introduced moderating and control variables to primarily measure the effects of the environment on the direction and strength of relationships and reduce measurement error due to differences in the characteristics of firms. Notwithstanding these advancements, more research was needed in areas such as longitudinal data analysis, the geographical spread of studies and the use of single sector studies to further contribute to theory development. The body of literature has revealed significant improvement in the understanding of export performance and its antecedents, but some gaps persisted in 2005 which merited further research.

2.2 Firm level drivers of export performance: a review from 2005 to 2016

2.2.1 The scope and analytical approach of the review

The review aims to analyse and synthesise recent determinants of export performance as published in academic literature. The review only takes into account empirical research findings published between 2005 and 2016 because as indicated earlier, studies published before 2005 are already comprehensively assessed in various reviews such as Madsen (1987), Aaby & Slater (1989), Zou & Stan (1998), Leonidou, Katsikeas & Piercy (1998), Ibeh and Wheeler (2005) and latterly Sousa, Martínez-López and Coelho (2008). While the systematic review was conducted between 2005 and 2016 with the methodological approach provided below, the author consulted the full gamut of literature throughout the dissertation up until its submission for review in 2019. The results presented here will be compared, where possible, with results from the reviews mentioned above. Indeed, the systematic review method deployed here is similar to those used by Zou and Stan (1998) and Sousa et al. (2008). The scope and framework of these reviews vary according to the overall aim of these studies, but the following review analyses and groups the antecedents of export performance into concepts which fit, where possible, under a resource-based framework as noted in the introduction and to be developed in later chapters. The antecedents/concepts will be assigned to three resources categories: physical, human capital and organisational capital. The physical resources will encompass items such as location, size, plant and equipment. Human capital resources are those resources that are associated with management and employees and organisational capital resources will include areas such as structure, relationships, strategy, planning, control and coordination systems, and competences.

A number of criteria were used to select the studies that have been included in this review. The criteria were pre-established rules of engagement that allowed each paper to be evaluated under the same circumstances and so enabled uniformity and comparability in the findings. The criteria for this review were partly adopted from Sousa et al. (2008) a comprehensive review of the literature of articles published between 1998 and 2005. All studies needed to meet these minimum conditions: 1) the study of firms that engaged in exporting rather than other forms of market entry modes such as joint ventures or wholly foreign direct investment; 2) export performance was a primary objective of the study, rather than overall firm performance; 3) studies that looked at export performance of firms or ventures rather than country or sector; 4) the studies used empirical data and reported on analysis and statistical tests; 5) they used primary research methods

containing adequate information on research approach; 6) they were peer reviewed and published in an internationally recognised journal or book; and 7) they were published in the English language. These criteria are largely in accordance with approaches used in previous literature reviews, thus providing this study with an appropriate balance of rigour and flexibility. It also ensures that an adequate number of publications are available for review. Notably, and as reported by previous reviewers, although every effort was made to include relevant literature meeting the criteria mentioned above, it is still possible that some pertinent articles were left out.

In total, 46 studies were analysed for this review, yielding over 100 determinants of export performance. The studies were retrieved from six of the top research repositories or databases, namely ABI/INFORM, Business Source premier, Emerald, JSTOR, Science Direct, and Web of Science. The studies were published in leading journals, including Advances in International Comparative Management, Advances in International Marketing, International Business Review, International Journal of Research in Marketing, International Marketing Review, International Studies of Management and Organization, Journal of Global Marketing, Journal of international Business Studies, Journal of International Marketing, Journal of World Business, and Management International Review.

Once a study was selected, vote-counting was used to analyse the findings, which effectively involved counting significant positive, negative and non-significant drivers of export performance. This approach was deployed by Zou and Stan (1998) and Sousa et al. (2008) in their reviews of the literature, instead of the meta-analysis approached used by Leonidas, Katsikeas and Samiee (2002). Notably, the vote-counting method uses a narrative approach in which a more subjective perspective is used. It also gives all findings equal importance once they have met the initial conditions for inclusion.

Conversely the meta-analysis, which was not used here, requires a higher threshold of agreement across different studies with regards to the measurement of export performance and its antecedents; study design, sample frame, context and statistical approach to data analysis (Hedges & Olkin, 1980). The vote counting method is a subjective process. The concepts and variable groups that are presented are also subjective, even though efforts were made to synchronise them with those from previous reviews for consistency.

2.2.2 Characteristics of the reviewed studies

This section gives an overview of the studies included in this review by outlining some of their key characteristics (Table 2.3). It will look at the countries in which the studies were undertaken to establish the geographical spread and identify any geographical gaps. The section comment on the sample sizes and response rates of the study as these are important in indicating the reliability of these studies. The industry, firm size and unit of analysis are also included in this section to provide more indications regarding the scope of these studies. The unit of analysis is reported to determine the level at which the analysis is undertaken as well as the statistical analysis in order to shed light on the complexity and robustness of the findings. The following table provides a summary of the key aspects of the studies, after which each key element will be discussed.

The majority of studies in this review were conducted in Europe, indeed 22 of 46, with the largest number undertaken in Portugal (6), Spain (5) and the UK (4), followed by Finland (3), Greece (2) and Norway (2). This represents a shift in the general interest in export performance research from the USA to Europe, as indicated by the reviews of Zou and Stan (1998) and Sousa et al. (2008). Five studies each were undertaken in the USA and China and three were carried out in Brazil and two in Thailand. Thirteen other countries had one study each, including the Caribbean region. Four studies were carried out in multiple countries: Haahti Madupu, Yavas, & Babakus (2005) in Finland and Norway; Zhang, Sarker & Sarker (2012) in China and USA; Boso, Story, Cadogan, Micevski & Kadic-Maglajlic (2013) in Ghana & Bosnia/Herzegovina; and Brouthers, Nakos, Hadjimarcou & Brouthers (2009) in Greece and the Caribbean. These cross-national studies help strengthen the external validity of these studies (Zou & Stan, 1998). This review also observed the geographical gap mentioned by Sousa et al. (2008) with regard to studies being conducted in the Caribbean, Africa and some areas in Asia. Within countries, most of the studies included participants from multiple industries except those by Filatotchev, Liu, Buck & Wright (2009) and Flor & Oltra (2005), which focussed on the high tech industry in China and the ceramics industry in Spain respectively.

Table 2. 3 – Studies Reviews and Description

Author	Year	Country	Sample Size	Industry	Firm size	Data collection	Response rate	Unit of analysis	Model Specification	Statistical analysis
Solberg & Durrieu	2006	Norway	206	Multiple	All	F2F/Mail	44%	Firm	MOD	CFA
Dow	2006	Australia	100	Multiple	All	Mail	48%	Venture	-	OLS
Spyropoulou Skarmeas & Katsikeas	2009	Greece	754	Multiple	SME	Mail/ Telephone	61%/74%	Venture	-	CFA
Sousa & Bradley	2008	Portugal	301	Multiple	All	Mail	34%	Firm	CON	CFA
Griffith & Dimitrova	2014	USA	151	Multiple	All	Online	23%	Firm	MOD & CON	SEM
Miocevic & Crnjak-Karanovic	2011	Croatia	125	Multiple	SME	Mail	24%	Firm	MED	SEM (PLS)
Haahti Madupu, Yavas, & Babakus	2005	Finland/Norway	87/62	Multiple	SME	Mail	-	Firm	MED & CON	Path Analysis
Boehe & Cruz	2010	Brazil	252	Multiple	M and L	Online	8%	Firm	MOD & CON	CFA
Zhang, Sarker & Sarker	2012	China/USA	81/66	Multiple	SME	Telephone	-	Firm	-	FA (PLS)
Diamantopoulos, Ring, Schlegelmilch, & Doberer	2014	Austria	173	Multiple	All	Online	-	Firm	-	FA (PLS)
Kropp, Lindsay and Shoham	2006	South Africa	539	Multiple	All	Mixed	83%	Venture	-	SEM
Lisboa, Skarmeas, & Lages	2013	Portuguese	267	Multiple	All	Online	21%	Firm	MOD & CON	CFA
He, & Wei	2013	China	196	Multiple	All	Mail	38%	Firm	MOD & CON	CFA
Chung	2012	New Zealand	100	Multiple	All	Mail	26%	Venture	MOD	FA/ Regression
Stoian, Rialp & Rialp	2011	Spain	146	Multiple	SME	Mail	34%	Firm	-	FA /Regression
Boso, Story, Cadogan, Micevski & Kadic-Maglajlic	2013	Ghana & Bosnia/ Herzegovina	164/117	Multiple	All	F2F/Online	49%/21%	Firm	MOD	CFA
D'Angelo, Majocchi, Zucchella & Buck	2013	Italy	2,657	Multiple	SME	Mail	-	Firm	-	Tobit Regression
Theingi & Purchase	2011	Thailand	320	Multiple	SME	F2F	-	Venture	-	Cluster/ Discriminant Analysis

Author	Year	Country	Sample Size	Industry	Firm size	Data collection	Response rate	Unit of analysis	Model Specification	Statistical analysis
Navarro, Losado, Ruzo & Diez	2010	Spain	150	Multiple	All	F2F	9%	Firm	-	FA (PLS)
Oura, Zilber & Lopes	2015	Brazil	133	Multiple	All	Mail	19%	Firm	-	SEM (PLS)
Knight & Kim	2009	USA	354	Multiple	SME	Mail	39%	Firm	-	CFA
Brouthers, O'Donnell, & Keig	2013	China/Romania	72/34	Multiple	All	F2F	34%/37%	Firm	CON	Hierarchical regression
Brouthers, Nakos, Hadjimarcou & Brotuhers	2009	Greece/Caribbean	119/83	Multiple	Small	Mail	30%/27%	Firm	CON	Regression
Sundqvist, Kaylaheiko, Kuivalainen, & Cadogan	2012	Finland	783	Multiple	All	Mail	81%	Firm	MOD	CFA
Souchon, Sy-Changco & Desnap	2011	Philippines	354	Multiple	All	Mail	28%	Firm	MOD & CON	CFA
Racela, Chaikittisilpa & Thoumrungroje	2006	Thailand	388	Multiple	All	Telephone	-	SBU	MOD	SEM
Leonidou, Palihawadana & Theodosiou	2011	UK	223	Multiple	All	Mail/online	52%	Firm	MOD	CFA
Lages, Silva & Styles	2009	Portugal	112	Multiple	All	Mail	28%	Venture	MOD & CON	SEM (PLS)
Beleska-Spasova, Glaister & Stride	2012	UK	256	Multiple	All	Online	24%	Firm	MED & CON	SEM
Cadogan, Sundqvist, Puumalainen & Salminen	2012	Finland	783	Multiple	All	Mail	81%	Firm	MOD & CON	CFA
Lim, Sharkey & Heinrichs	2006	USA	102	Multiple	All	Mail	36%	Firm	MOD	Regression
Sorensen & Madsen	2012	Denmark	249	Multiple	SME	Online/Mail	31%	Firm	CON	Regression
Theodosiou & Katsikea	2013	UK	160	Multiple	SME	Mail	20%	Venture	MOD & CON	CFA
Sousa, Lengler & Martinez-Lopez	2014	Portugal	273	Multiple	SME	Mail	34%	Firm	CON	PLS-PM
Filatotchev, Liu, Buck & Wright	2009	China	711	High Tech	SME	Mail	39%	Firm	CON	Regression
Flor & Oltra	2005	Spain	88	Ceramics	All	Mail	43%	Firm	CON	Regression
Sousa, Ruzo & Losada	2010	Spain	208	Multiple	All	Mail	17%	Firm	MED & CON	CFA

Author	Year	Country	Sample Size	Industry	Firm size	Data collection	Response rate	Unit of analysis	Model Specification	Statistical analysis
Lages & Montgomery	2005	Portugal	519	Multiple	All	Mail	22%	Venture	MED	CFA
Magnusson, Westjohn, Semenov, Randrianasolo & Zdravkovic	2013	USA	153	Multiple	All	Online	30%	Venture	MOD & CON	SEM (PLS)
Lages, Jap & Griffith	2008	Portugal	519	Multiple	All	Mail	22%	Venture	CON	CFA
Durmusoglu, Apfelthaler, Nayir, Alvarez & Mughan	2012	Turkey	143	Multiple	SME	Mail	29%	Venture	-	MANOVA
Yi, Wang & Kafouros	2013	China	359,874	Multiple	All	Panel	-	Firm	MOD & CON	Hierarchical regression
Papadopoulos & Martin	2010	Spain	140	Multiple	All	F2F	33%	Firm	-	SEM (PLS)
Bloemer, Pluymaekers & Odekerken	2013	Netherlands	134	Multiple	All	Online	4%	Firm	-	SEM (PLS)
Kaleka	2011	UK	312	Multiple	All	Mail	35%	Venture	-	SEM
Lengler, Sousa & Marques	2013	Brazil	197	Multiple	All	Mail	20%	Venture	MOD	SEM

MOD = Moderating variable MED = Mediating variable CON = Control variable

Sampling and data collection are on the whole robust for the studies included in the review as the sample sizes, response rates and unit of analysis are comparable to previous studies. In total, the studies in the review cover 375,711 firms. The minimum sample size is 88 and this study was carried out by Flor & Oltra (2005) who looked at the ceramics industry of Spain. The maximum sample size is 359,874 and this study was undertaken by Yi, Wang & Kafouros (2013) in China using panel data. The average sample size is slightly high at 7,995, but this is as a result of the very large sample size obtained by Yi et al. (2013). Instead, the median sample size is a reasonable 208 units per study, which would ensure a relatively robust basis for substantive data analysis (c.f. 178 Sousa et al., 2008). In regard to the response rates, the average rate was 34%. The maximum rate (83%) was achieved by Kropp, Lindsay and Shoham (2006) in South Africa, using a mixed method of data collection. Conversely the lowest response rate (4%) was achieved by Bloemer, Pluymaekers & Odekerken (2013) through an online approach in the Netherlands. In terms of data collection approach, thirty-one studies used mail, the most widely-used method. The majority of studies (33) used the firm as the unit of analysis, thirteen used venture and Racela, Chaikittisilpa & Thoumrungroje (2006) used strategic business unit (SBU). This finding is similar to those returned by Zou and Stan (1998) and Sousa et al. (2008), indicating that researchers continue to use varying aspects of business performance for their research. The typical study was conducted by mail, obtained a response rate of about 34% and a mean sample size of about 208 units and therefore providing substantive data for this review.

Statistical analysis is increasingly sophisticated as researchers use more multivariate analysis techniques. Compared with the earlier studies which deployed more simplistic analytical techniques such as univariate analysis (Madsen, 1987; Aaby & Slater, 1989), studies in this review used techniques such as factor analysis, cluster and discriminant analysis, multiple regression and structural equation modelling (SEM). The most commonly deployed technique is confirmatory factor analysis (CFA) explicitly used in sixteen studies; this presents a move away from the more popular regression analysis as reported in Sousa et al. (2008) review. The increased popularity of CFA and SEM reflects the degree to which the models used to explain export performance have become complex, especially with their more frequent use of control, moderating and/or mediating variables. Indeed, twenty studies used control variables in their model specification, eighteen used moderating variables, five used mediating variables and ten used both control and moderating variables. Studies by Chung (2012) in New Zealand and Stoian, Rialp & Rialp (2011) in Spain used a combination of factor and regression analysis. The

statistical analysis used in the studies covered in this review are on the whole more complicated than those used in the reviews mentioned earlier indicating progress, at least statistically, in the development of the literature on export performance.

2.2.3 Theoretical backgrounds applied

In advance of looking at the antecedents of export performance, the theoretical underpinning of export performance used by the scholars is presented here. Scholars are mostly likely to view the study of export performance through the theoretical lens of the resource-based view of the firm. Indeed, half of the studies (23 of 46) reviewed used resource-based view theory as their underlying theory (e.g., Sousa & Bradley, 2008; Griffith & Dimitrova, 2014; Stoian, Rialp, & Rialp, 2011; Leonidou, Palihawadana, & Theodosiou, 2011). Four studies each employed contingency theory (e.g., Sousa & Bradley, 2008; Boso, Story, Cadogan, Micevski, & Kadic-Maglajlic, 2013; Lages and Montgomery, 2005) and organisational learning theory (e.g., Brouthers, Nakos, Hadjimarcou, & Brotuhers, 2009; Souchon, Sy-Changco, & Desnap, 2011; Lages, Jap, & Griffith, 2008) to conceptualise and operationalise the concept of export performance. For example, contingency theory provided theoretical backing for relationships between antecedents such as firm innovativeness and export performance under varying environmental conditions, whereas organisational learning was between antecedents such as past performance and information acquisition, distribution, integration and interpretation and export performance. Other theories such as behavioural theory, dynamic capabilities theory, internationalisation theory and institutional theory were less frequently used in the studies (Dow, 2006; Tan & Sousa 2015; Brouthers, Nakos, Hadjimarcou, & Brouthers, 2009; Boehe & Cruz, 2010 respectively). In eleven of the studies reviewed scholars used multiple theories in their conceptualisation of export performance especially in the cases of more complex models (e.g., Zhang, Sarker, & Sarker, 2012; He, & Wei, 2013; Navarro, Losado, Ruzo, & Diez, 2010).

2.2.4 Firm level antecedents of export performance

The firm-level antecedents of export performance from 2005 to 2016 are categorised under three main forms of firm resources - physical, human capital and organisational capital resources. These firm resources include all assets, competences, processes, firm characteristics, information and knowledge that the firm controls and which underpins its competitive advantage (Daft, 1983). The physical resources include aspects of the firms such as physical technology, plant and equipment, nature of resources, geography and location (Williamson, 1975; Johnson, Scholes & Whittington,

2008). Human capital resources comprise of firms' staff profile, skills, knowledge, experience, judgements, relationships, insights and commitment of employees (Becker, 1964; Johnson, Scholes & Whittington, 2008). The organisational capital resources are more complex bundles of resources such as reporting structures, planning, control and coordination systems and relationships between groups within and without firms (Barney, 1991; Tomer, 1987). Notably, there are other resource groups mentioned in the literature, for example, relational resources (Ibeh & Wheeler, 2005) and financial resources (Grant, 1991). As the main aim of this study is to introduce a capabilities-based model of explaining export performance, the three main resource groups outlined above are more than adequate to encompass most internal drivers of export performance.

The categorisation of the determinants of export performance solely based on resources is a challenge because of the confusion that persists between various terms. In 1991, Grant indicated that resources are inputs of the production process and that could be defined as financial, physical, technological, human and organisational. Similar observations were also made by Barney (1991) as already indicated above. The challenge, however, comes in unpicking between terms such as resources, competences and capabilities which are used interchangeably from study to study. In the literature, firm capabilities are described as what the firm can do with bundles of resources working together (Grant, 1991). However other authors characterise this as 'distinctive competencies' (Snow & Hrebiniak, 1980) or 'core competencies' (Prahalad & Hamel, 1990). In the classification process for this review, all competences will be viewed as aspects of human capital and organisational capital resources since competences are activities, processes and know how (Johnson et al., 2008). In the cases where competences are labelled as capabilities, which are prevalent in the literature, they will indeed be reviewed as competence. Capabilities in the strictest sense are the ability of firms to perform or transform inputs to a level that it can survive or even dominate its competitors, which is underpinned by the firm's resources (Johnson et al., 2008; Barney, 1991; Teece, 2014). As a consequence, for this review, capabilities were only items that were measured in comparison to other firms, whilst competences were not. The varying interpretation of these terms will continue to exist but this review attempts to identify resources (including competences) as such and position them as the foundation of firm capabilities which are the main subject of this study.

2.2.4.1 Physical resources

Physical resources are generally tangible resources and are used sparingly in the literature to determine levels of export performance. These resources include aspects such as plant and equipment, physical technology or machine, location, and access to raw material. The nature of these resources such as their size, age, general condition and capacity will also determine their usefulness (Johnson et al., 2008). The physical resources are broadly lower order resources in respect to competitive advantage and it is only in exceptional circumstances a firm would derive advantage from them in and of themselves (Teece, 2014). It is not surprising that in recent years only four studies have used these resources as determinants of export performance. Instead, they are largely viewed as demographic profile information in export performance literature and are used largely as control variables and this is the case for 17 of the 46 studies in this review. Firm size and experience were the most frequently mentioned aspect of physical resources in the literature.

The size of firms has always been viewed as a driver of export performance because size tends to be often associated with the availability of resources and thus performance. Firm size has been operationalised using a number of proxies such as the number of employees, sales volume and total sales (Sorensen & Madsen 2012; Lages et al., 2008; Sousa & Bradley, 2008). A consensus on the role of firm size in driving export performance has stayed largely elusive with past reviews reporting positive, negative and non-significant associations (Aaby & Slater, 1987; Zou & Stan, 1998; Sousa et al., 2008). In this review, only one study hypothesised on the relationship between firm size and export performance and that study found no link between them. Stoian et al. (2011) studying SMEs in Spain reported no link between these firms' sizes (operationalised as number of employees) and performance. They concluded that size is no longer necessarily associated with the success of firms operating in international markets, confirming the results from previous reviews. Going further, they surmised that it was probably firm commitment to international trade that is the key driver, rather than the number of employees. The limited use of firm size as an antecedent of export performance in recent study is an interesting development as researchers are finding it increasingly difficult to generalise on this basis. An argument put forward is whether firm size causes or is caused by export performance (Wagner, 1995). In the end, firm size is a lower order firm resource and only underpins the firm capabilities which are indeed the source of superior performance.

Firm experience was shown to play a mixed role in influencing export performance, with mixed results in the literature reviews. Experience is defined as the number of years a firm has engaged in export activities and/or business more generally. Earlier reviews have revealed that greater firm experience as measured by age does not necessarily lead to superior export performance (Zou & Stan, 1998; Sousa et al., 2008). On balance the relationship is more positive than negative. More recent reviews have also provided some mixed results. Stoian Rialp, & Rialp (2011), in their study of Spanish SMEs, returned a positive link between firm experience and export performance. Conversely, in their study of Italian SMEs, D'Angelo et al. (2013) reported a negative association between firm experience and export performance at least at the regional level. Their findings indicated that young SMEs tend to develop born regional strategies and benefit significantly from these compared with their larger counterparts. Indeed, firms operating in international markets are more sensitive to conditions abroad and operate in selected markets, developing strategies to fully exploit these markets (Forsgren & Johansaon, 1992; Cavusgil & Zou, 1994). An additional explanation for the negative link between experience and performance is that younger firms see foreign markets as their opportunity for growth (Sousa et al., 2008). Firms with higher levels of experience do perform better in international markets on the whole, but there is evidence that born global or regional firms can also show performance which is superior to their older counterparts.

Firm location was also found as having a positive impact on international success because location can give firms an advantage in regard to access to resources. A favourable location was described as being situated in an industrial park with readily available sources of managers from similar industries (D'Angelo, Majocchi, Zucchella & Buck, 2013). The implication is that firms in clusters develop close relationships which favour the deployment and coordination of resources to extract advantages that they otherwise could not do on their own (Newbert, 2007). The findings indicated that there was indeed a positive association between location in an industrial park and regional export performance (D'Angelo, et al., 2013). The study was conducted amongst Italian SMEs showing that firms that are located in a cluster of companies return higher levels of export performance at least in regional markets. This is the only research that looks at the location of firms and export performance but introduces an interesting dynamic when it comes to the position of firms within business clusters, the synergies that can be developed between them through exchanges of resources particularly human resources, and the subsequent impact on export performance.

2.2.4.2 Human capital resources

As indicated earlier, human capital resources are related to the characteristics of staff including but not limited to aspects such as their skills, experience, judgement, insight, and commitment within an organisation. Previous reviews as well as this one have revealed that human capital resources are widely operationalised as antecedents of export performance and are found to play an important role in explaining the export performance of firms. In previous reviews, human capital resources focussed on specific traits such as education and training, language skills, commitment, perceptions, mindset, motivation, experience and risk taking of managers and staff (Aaby & Slater 1987; Zou & Stan 1998; Sousa et al., 2008). The findings from this review follow a similar classification but other areas were also explored in the literature such as their entrepreneurial posture and time living overseas. The subsequent paragraphs give a commentary on the impact of human capital resources on export performance in the extant literature.

First, management export commitment continues to show a positive association with export performance across studies since dedicated managers will tend to allocate the necessary resources for these activities to succeed. Commitment can be viewed as a latent variable with items such as having an export department, strategic planning of export activities, research activities on overseas markets and regular visits to export markets (Stoian, Rialp & Rialp, 2011) or as calculative where management need to maintain strong relationships with international customers rather than merely desiring to do so (Bloemer, Pluymaekers & Odekerken, 2013). The results from this review concurs with finding from Aaby and Slater (1989), Zou and Stan (1998), and Sousa et al. (2008) indicating that the more management within a firm is committed to its export activities the greater the export performance to be expected (Stoian et al., 2011; Bloemer et al., 2013; Navarro, Losado, Ruzo & Diez, 2010; Lages, Jap & Griffith, 2008; Beleska-Spasova, Glaister & Stride, 2012). The underpinning principle for this result is that, when management commits to a course of action, they will ensure that it is effectively planned and resourced so that its strategies improve export performance (Sousa et al., 2008; Cavusgil & Zou, 1994). Management commitment is a critical underpinning of advantage and performance, and where this is high within firms, they would expect to have higher performance compared with firms where this is low.

Management attitude towards export is an important driver of performance because this will define the broad posture of the organisation to international trade. On

balance management attitude towards export have a positive association with performance, with six of the nine studies depicting this positive relationship. A global mindset (Miocevic & Crnjak-Karanovic, 2011; Stoian et al., 2011), international orientation (Sorensen & Madsen, 2012), and entrepreneurial posture and a propensity for culturally distant markets (He & Wei, 2013; Bloemer et al., 2013) all recorded a positive link with export performance meaning more of these attitudes will result in higher export performance. In other words, management that project a global outlook, which sees international markets as crucial for firm performance and growth are more likely to outperform those who do not. Conversely, aspects of management attitude such as aversion to risk taking (Bloemer et al., 2013) and resultant conservation or being closed to change (Sousa, Ruzo & losada, 2010) yielded a negative association with export performance. The review by Sousa et al. 2008 reported risk taking as having a positive association with export performance. This finding seems to be pointing to a quadratic (U-shape) relationship between risk taking and performance (although there is no empirical evidence to support this assertion). So, risk taking is positively associated with performance up to a certain point then turns negative. Further, management looking for self enhancement, that is, looking for personal success, have no material impact on the export performance of their firm (Sousa, Ruzo & Losada, 2010). The attitude of management to export plays a largely positive role in the performance of firms, but in the case of risk taking there is an initially positive effect which then turns negative.

Management's international experience has a broadly positive influence on export performance due to past experience, perhaps as it helps firms exploit foreign opportunities and avoiding threats. In the literature, international experience can be a latent variable incorporating the number of countries or regions to which a firm exports and, the number of years it has operated in international markets, or it can be a single variable based on the number of years of exporting (Aaby & Slater 1987; Zou & Stan 1998; Sousa et al., 2008; Sousa, Lengler & Martinez-Lopez, 2014; Stoian et al., 2011; Lages & Montgomery, 2005). This review has found some mixed findings regarding the link between international experience and export performance. In the cases where experience is measured by number of years, countries or regions, it is positively linked to export performance (Stoian et al., 2011; Lages et al., 2005; Cadogan, Sundqvist, Puumalainen & Salminen, 2012).

The positive linked achieved by Stoian et al. (2011) is in part due to the fact that individuals with international experience were more likely to be able to seize on

opportunities and avoid any pit falls; a conclusion which was also drawn out by Sousa et al. (2008). In one case, where international experience was measured by whether managers had worked for an MNE (multinational enterprise), no significant link was recorded with export performance (Filatotchev, Liu, Buck & Wright, 2009). The study was carried out amongst Chinese high technology companies and the authors concluded that it is the movement of international entrepreneurs with international vision and networks or relationships are more likely to drive performance than mobility of former employees of MNEs. International experience is a critical driver of export performance for reasons such as identifying opportunities and threats, but it appears that it diminishes in importance in the high technology sector.

The international exposure of management and employees to different countries and culture in part contributes to the export performance of firms since this exposure gives staff an appreciation of different societies, which in turn seemingly helps them to more fully meet the need of their foreign buyers. In this review, international exposure is an all-encompassing term that includes cultural sensitivity and distance and time spent abroad. A couple of studies looked at culture and performance with one reporting a positive link between cultural sensitivity and performance (Harich & Labahn, 1998; Bloemer et al., 2013) and the other a negative association with cultural distance (Sousa, Lengler & Martinez-Lopez, 2014). Where management is open-minded, they would be more likely be able to meet the needs of foreign markets hence the positive association. However, where they have cultural values that are very different to those in the potential markets this would have an adverse impact on performance because of the cost of foreignness. Paradoxically, no link was found between time spent abroad and export performance (Stoian et al., 2011) even though there was a positive link found between knowledge transferred from abroad and returnee entrepreneurs and performance (Filatotchev et al., 2009). On balance, international exposure makes a direct and positive contribution to export performance as this is an important tool in better understanding the needs and threats emanating from international markets.

The linguistic skills of management and staff have a positive influence on export performance. A study by Stoian et al. (2011) of Spanish SMEs shows that foreign language skills have a positive link with performance meaning that the more foreign languages staff speak the better is the firm's export performance. Linguistics skills are partly linked to staff international exposure as these skills enable management to more closely understand the needs of their foreign customers and certainly identify any possible

threats. However, Bloemer et al. (2013) found that linguistic skills had no significant effect on export performance even though they proposed so. The study was among Dutch firms and the authors indicated that linguistic skills had an indirect effect as it facilitated cultural sensitivity which in turn positively influenced performance. In other words, or at least in the case of the Netherlands, language skills make management more sensitive to what happens in international markets and therefore benefit from this even though this benefit is only indirect. More research is required in this area but the ability of management to speak other languages clearly has a positive influence on export performance *albeit* this may be direct and/or indirect.

2.2.4.3 Organisational capital resources

The organisational capital of firm can be best described as the intangible resources that bring together its physical and human capital resources. Lev, Radhakrishnan and Evans (2016, p 5) aptly defined organisational capital as "knowledge used to combine human skills and physical capital into systems for producing and delivering want-satisfying products". Indeed the largest proportion of operational drivers of export performance in recent years fall under this classification of resources. Organisational capital encompasses therefore aspects such as information and knowledge that is embodied within staff (Eisfeldt & Papanikolaou, 2013), values and norms (Ludewig & Sadowski, 2009), coded and tacit knowledge (Wright, Dunford & Snell, 2001), informal and formal planning and relationships (Barney, 1991), and core business processes and practices (Teece, Pisano & Shuen, 1997). In other words, organisational capital resources are the essence of a firm, in which, most aspects of the critical underpinning of competitive advantage can be found. It could also be characterised as that which makes a firm being greater than the sum of its parts. The vast majority of antecedents to export performance in this review fall under organisational capital resources and cover areas such as relationships/networks, marketing mix strategies, innovation, adaptation, information, knowledge, and other competences. The following paragraphs will look at how these factors drive performance in firms that operate internationally.

The market orientation of firms has a positive influence on export performance because firms which focus on the needs of the customers and activities of competitors are more likely to succeed. Firms that are market oriented "[....] recognize and respond to changes in consumer needs and to competitive moves made by other firms in their industry" (Kropp, Lindsay & Shoham, 2006, p 508). This review confirms earlier findings by Sousa et al. (2008) that market orientation has a positive impact on export performance

(Miocevic & Crnjak-Karanovic, 2011; Lengler, Sousa & Marques, 2013; Cadogan et al., 2012; Sorensen & Madsen, 2012; Kropp et al., 2006). The more export market-oriented a firm is, the more likely that it will have superior performance compared to a similar firm that is not market oriented. The reason for this is that market-oriented firms more closely align their strategies with the environment and thus improve performance (Knight & Dalgic, 2000).

However, two studies reported a more complex relationship between market orientation and export performance. Sorensen et al. (2012) and Lengler et al. (2013) found evidence to suggest that the relationship may be indeed quadratic (U shaped) in some instances. In the case of Sorensen et al. (2012), the study found that where Danish SMEs had a focussed market portfolio, the market orientation effect on export performance would be positive initially, but at some maximum point turn negative. They indicated that these firms have limited resources to invest in high level market orientation, but at the same time they obtain some benefit from such an orientation. Conversely, Lengler et al. (2013, p458) reported a U-shaped relationship between customer orientation (one half of market orientation) and export sales which suggesting that "export firms incrementally benefit from further investments in customer orientation after a certain minimum point". On the whole, market orientation will largely have a positive influence on export performance seeing that greater sensitivity to customers and competitors aids performance, though there is some evidence to suggest that with a focussed number of markets this effect can turn negative.

The literature also shows that information plays a key role in determining the export performance of firm as it is closely associated to the points mentioned above on market orientation. Firms with a learning orientation (i.e., a firm skilled in creating, acquiring, and transferring information) tend to return higher performance than other firms (Kropp et al., 2006). More specifically, the availability of information (Stoian et al., 2011), response to export information (Souchon, Sy-Changco & Desnap, 2011), efficiency of information dissemination (Theodosiou & Katsikea, 2013), and information technology (Zhang, Sarker & Sarker, 2012) all have a positive influence on export performance, indicating that as these rise, export performance is expected to rise. In other words, a firm's knowledge of its environment (customers and competitors) plus an information system for easy dissemination of this information is an important benefit for firms that are looking to operate internationally. Taking also into account different uses of information, Theodosiou et al. (2013) found that the conceptual use of information

(i.e., information used to broaden the knowledge of management without serving any particular project) as well as the symbolic use (i.e., information used to support the opinion of a decision-maker to justify a decision previously made, perhaps on the basis of his/her instinct) have a positive impact on export performance. These findings show that information is an important organisational capital resource driver of export performance. Undoubtedly its timeliness, relevance, reliability and objectiveness will increase its ability to take advantage of opportunities and mitigate the impact of threats (Theodosiou et al., 2013).

Turning to international business relationship as an organisational capital resource, the review shows that aspects of this relationship have an inconclusive link to export performance with some measures having a positive impact on performance as they increase, with similar numbers reporting no significant impact and indeed some, having a negative impact. Five studies reported that developing strong relationships with intermediaries and other companies will indeed improve and sustain performance. Specifically, the studies intimated that as intermediary resources (Theingi & Purchase, 2011), complementarities of partner capabilities (Griffith & Dimitrova, 2014), global networks (Filatotchev, Liu, Buck & Wright, 2009) and cooperation (Racela, Chaikittisilpa & Thoumrungroje, 2006; Flor & Oltra, 2005) increase so will the export performance of firms. The findings are further supported by the argument posited by Johanson and Vahlne (1997) that says that these relationships will provide exporters with experiential knowledge of international markets, which in turn could be converted to explicit knowledge that would lead to superior performance. Indeed Lages, Silva and Styles (2009) found more globally that relationship performance (i.e., the degree to which firms develop solid and productive relationships) is also positively associated with export performance. In other words, relationship distance will negatively impact on the success of exporting firms (Racela et al., 2006). However, it is important that firms do not become too dependent on foreign stakeholders because there is an inverse link between dependence and performance, indicating that as firms grow more dependent on partners, performance is adversely affected (Racela et al., 2006). So, firms that establish solid relationships with international partners will on the whole have a better sense of what is happening in their international markets and these relationships may yield superior performance as long as they do not become overly dependent on them.

Further, the review identified relationship variables that were negative and non-significantly associated with export performance. Alliance strategies were shown to have

an adverse impact on export performance, which was an unexpected result (Solberg & Durrieu, 2006). They concluded that as access to marketing networks is negatively associated with alliance strategies, where these marketing networks function well, they may be nullifying the effects of alliances. A communication orientation about partners in a network had no significant association with export performance meaning that firms with a lower communication orientation performed the same as those with higher communication (Kropp et al., 2006). The study indicated that this was probably (although there is no empirical evidence for this assertion) since firms in the early phases of internationalisation are more action than communication-oriented given their limited resources.

Interestingly, cooperation was noted earlier as having a positive impact on export performance, but a couple of studies registered no significant associations (Haahti Madupu, Yavas, & Babakus, 2005; Racela et al., 2006). According to Flor & Oltra (2005), cooperation with organisations other than research institutions yields no material improvement in export performance mainly because the outcomes from these relationships do not provide any distinct contribution to export success. Similarly, Haahti et al. (2005) found no link between a cooperative strategy (involving business and government relationships) and performance. Instead, they found that – at least in the case of SMEs - cooperation impact on export performance is completely mediated by knowledge intensity, meaning that management for these organisations should see cooperation (especially with foreign partners) as a means of developing their knowledge intensity. Indeed, relational resources (i.e., links with governments, customers and businesses) also returned no significant impact on export performance (e.g., Haahti et al., 2005; Beleska-Spasova et al., 2012). International business relationship is an important driver of export performance, but the strength of its influence will depend on resources that are available to the firms and how the firm uses the tacit and explicit knowledge it obtains from these relationships.

The level of innovation of firms positively influences their export performance because innovative firms will provide international customers with new products that are more closely aligned to their needs. Innovativeness mean a firm that encourages a spirit of creativity, supported by research and development, will experiment to develop new processes that will eventually yield new products and services and even technological leadership (Lumpkin & Dess, 2001). In review by Sousa et al. (2008), only three studies looked at innovation as a driver of export performance, with all indicating a positive link

between both. In this review the number of studies meeting the review criteria is ten, again with all reporting a positive association with performance (Boehe & Cruz, 2010; Kropp et al., 2006; Boso, Story, Cadogan, Micevski & Kadic-Maglajlic, 2013; Lisboa, Skarmeas, & Lages, 2013; Oura, Zilber & Lopes, 2015; Sundqvist et al., 2012; Lages, Silva & Styles, 2009; Flor & Oltra, 2005; Yi, Wang & Kafouros, 2013; Filatotchev et al., 2009). The literature, however, shows that the effects of innovativeness on performance tend to be moderated by competitive intensity and channel networking capabilities (Boso et al., 2013), or levels of turbulence (Lisboa et al., 2013) or even level of foreign ownership and location in a business group/cluster (Yi, Wang & Kafouros, 2013). In other words, firms that export to dynamic markets benefit more from the fruits of their innovation than firms that operate in less dynamic markets (Sundqvist et al., 2012). Similarly, firm structure moderates the strength of the effect of innovation on performance, meaning that where firms are set up with a more organic structure (i.e., more decentralised or informal) the impact of innovation on performance is greater and the opposite is true for centralised firms (Boso et al., 2013). So, the innovativeness of firms plays a key role in influencing export performance as firms can bring new products to market, but this is most beneficial when firms operate in dynamic markets.

Adaptations in processes and practices for export markets have a largely positive impact on performance because these variations allow firms to closely align their products/services to customer needs. The present review can report that adaptations to prices (Sousa & Bradley, 2008; Lages & Montgomery, 2005; Sousa, Lengler & Martinez-Lopez, 2014), branding and packaging changes to appear domestic (Brouthers, O'Donnell, & Keig, 2013), the marketing mix more broadly (Magnusson, Westjohn, Semenov, Randrianasolo & Zdravkovic, 2013), and international strategy (Dow, 2006) have a positive impact on export performance. These variations in the way firms do business for export markets tend to increase performance the more firms look to exploit short term changes in market conditions. Export market exploitation registers a positive association with export performance (Lisboa et al., 2013; Sundgvist et al., 2012). However, the strength of the impact of market exploitation on performance weakens in very dynamic markets (Sundgvist et al., 2012). Conversely, Lages & Montgomery (2005) reported a negative link between price strategy adaptation and export performance in their study of Portuguese firms. This was an unexpected result for the researchers and they indicated that this was probably the case because of the following reasons: Portuguese firm competitive advantage lies in price inelastic products; standardised strategies are sometimes the best approach; price is linked to product image so adapting prices may

affect product image; and Portuguese firm tend to price the products in US dollar outside the Euro zone and strength of the US dollar remove any pressure for price increases. Ultimately adaption activities are positive drivers of export performance, but they are a more effective strategy for stable markets.

A number of studies in recent years have looked into the role of specific aspects of products, such as development and quality, and export performance. The findings suggest that product development is not necessarily an effective driver of export market success because market characteristics would play a role in its influence. However, a product development strategy has shown to have a positive influence on export performance (Solberg & Durrieu, 2006) as well as a product-based differentiation based on corporate social responsibility (CSR) (Boehe & Cruz, 2010). In case of the latter, the findings show that the effects on performance are inversely linked to number of markets and that the effects on performance are weaker in nations with emerging markets. Conversely, studies have also reported no significant link between product capabilities and product quality and export performance (Lim, Sharkey & Heinrichs, 2006; Lages, Silva & Styles, 2009). In the case of product quality, some anecdotal evidence was provided as an explanation for its lack of impact on performance: in some markets, product standardisation is preferable to adaptation strategies. Similarly, this would apply to the case of product capabilities (which is the development and launch of new product), but Lim et al. (2006) also indicated that their study was set in a very competitive industry, so senior managers were more focussed on the overall competitive position of the firm than product development. Firms are required to develop products that meet the needs of foreign customers, but only in certain circumstances would variations to these products or the development of new ones would improve export performance.

The level of internationalisation has a positive effect on export performance as the more a firm engages in international business the more opportunity there is for greater performance. Level of internationalisation is best defined as "the degree to which the firm is connected to foreign markets in terms of export intensity, international development [...]" (Papadopoulos & Martin, 2010). Four studies looking at the effects of levels of internationalisation on export performance reported that the relationship is positive, indicating that as firms increase their presence in international markets their export performance would be better (Brouthers, Nakos, Hadjimarcou & Brotuhers, 2009; Beleska-Spasova et al., 2012; Solberg & Durrieu, 2006; Papadopoulos & Martin, 2010). This is largely due to the assertion that an increasing presence in international markets

can only enhance a firm's performance as they are able to optimise cost/benefit ratio on internationalisation and thus improve performance (Contractor, 2007; Beleska-Spasova et al., 2012).

A study also found that firms operating in more competitive markets achieve greater export performance contrary to their expectations (Lages & Montgomery, 2005), indicating that this occurs because more competitive markets tend to be located in countries with established markets and thus yield greater returns; and management tend to be more committed and focus in these kinds of markets again impacting performance. On the other hand, Brouthers et al. (2009) in their study of small firms in the Caribbean and Greece found a negative association between number of markets and performance. Indeed, they posited that small firms should only focus on one market to better leverage their scare resources. Diamantopoulos, Ring, Schlegelmilch, & Doberer (2014) lend support to this, but go further by indicating that effective segmentation strategies more significantly influence performance. In a nutshell, high levels of internationalisation improve the export performance of firms as they are able to exploit their presence in these markets for greater gain, but this is not necessarily the case for small firms as they would need to focus their limited resources on fewer markets.

International business competence has a positive impact on export performance. A study by Knight and Kim (2009) operationalised international business competences as a higher order or composite variable with multiple concepts some of which were already mentioned above. The variable included international orientation, international marketing skills, international innovativeness, and international market orientation each of which comprise a number of variables themselves. This was a very unique approach to operationalising business competence, but it revealed that these key concepts (international orientation, international marketing skills, international innovativeness, and international market orientation) are correlated enough to form a latent variable. On separate but also general note, Lages et al. (2008) found that historic satisfaction with export performance tends to have a positive impact on export performance. However, this was not true for export intensity and export performance achievements more broadly as they had negative impacts on present export performance. Lages et al. (2008) indicated that the negative effect of past period export intensity might be that when prior intensity is high, firms may increase slack and decrease effort on exporting operations, which they claim may negatively affect performance achievement, satisfaction and export intensity

in the short term. They also posited that the negative impact of past performance was as a results of export intensity being difficult to maintain year on year.

2.2.4.4 Capabilities

Earlier reviews by Zou and Stan (1998) and Sousa et al. (2008) did not report on any study explicitly theorising on firm capabilities or areas of advantage as drivers of export performance because this is an area of research that was largely overlooked by scholars. This is an emerging area of interest in which this study would like to make a wider contribution that would present academics and practitioners with a capabilities-based model of export performance. Encouragingly, findings from this review show a positive relationship between firm capabilities[1] in the strictest sense (or areas of advantage) and export performance (Krasnikov & Jayachandran, 2008). Four studies have indeed operationalised firm capabilities and revealed a positive link. Specifically, they suggest that the higher the levels of perceived branding (Spyropoulou Skarmeas & Katsikeas, 2009), service (Kaleka, 2011; Leonidou, Palihawadana & Theodosiou, 2011), product and cost[2] (Leonidou et al., 2011) or general competitive advantages (Navarro, Losado, Ruzo & Diez, 2010), the higher the levels of export performance. In other words, where firms are better than their competitors, as indicated by these studies, in areas such as brand image and awareness, product accessibility, etc., they enjoy superior performance than firms that do not excel in this area. These are important but limited areas of firm advantage, so further research contribution in this area can only help increase understanding of the role of firm capabilities as a driver of export performance and their interplay with moderating, mediating and control variables.

2.2.5 Moderating, Mediating and Control variables

The inclusion of moderating variables in the model specification of recent studies shows that a number of factors affect the relationship between export performance and its antecedents. According to Sharma, Durand & Gur-Arie (1981, p33) moderating variables specify "the form and/or magnitude of the relationship between a predictor and criterion variable". In other words, these variables can make relationships that seem positive turn negative and/or just weaken established links. In this review, the largest

[1] Notably, these items are reported as firm capability-measures because they were operationalised as relative to firms' main competitors. So, where the word 'capabilities' was used in a context that did not put it relative to competitors (e.g., Lages, Silva & Styles, 2009) it was instead viewed as organisational capital resources throughout this review.

[2] Although cost competitive advantage has a positive impact on export performance, Diamantopoulos *et al* (2014) found that cost reduction based segmentation of markets have no impact on export performance.

proportion of moderator variables where associated with the environment (50%) followed by some organisational capital resources (36%). Issues around environmental turbulence such as market dynamism and competitive intensity were prominently specified, something that was also reported by Sousa et al. (2008). For example, Boso et al. (2013) reported that the effect of firm innovation on export performance is more positive when competitive intensity was higher. Theodosiou & Katsikea (2013) found that efficient information dissemination has a stronger impact on export performance when competitive intensity is high. In regard to market dynamism, Sundqvist, Kaylaheiko, Kuivalainen, & Cadogan (2012) reported that Schumpeterian entrepreneurial oriented behaviours have no significant impact on performance when market dynamism is close to zero but become significant as dynamism increased. Results on the use of organisation capital resources as moderator variables were less convincing in the studies and produced weak findings for example Yi, Wang & Kafouros (2013) reported that the effects of a firm's innovative capabilities on export performance. In the case of export performance literature, environmental turbulence appears to moderate the direction and strength of predictor variables with a less convincing case made for resources.

A recent introduction to the export performance literature is the use of mediator variables. Indeed, only five studies specified mediator variables, so it is an area that merits further research to determine its overall role in understanding the drivers of export performance. Mediator variables can be best described as "a third variable, which represents the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest" (Baron & Kenny 1986, p1173). In other words, the effects of the external factors of a firm are mediated by the various transformation processes internal of the firm. The studies posited that global mindset mediates the link between export market orientation and export performance (Miocevic & Crnjak-Karanovic, 2011), knowledge intensity mediates cooperative strategy and export performance (Haahti Madupu, Yavas, & Babakus, 2005), export strategy mediates firms resources (Beleska-Spasova, Glaister & Stride, 2012), and consumer responsiveness mediates resultant conservation (being closed to change) and resultant self-enhancement (looking for personal success) and export performance (Sousa, Ruzo & Losada, 2010). Of particular interest, and more closely aligned with Baron and Kenny's definition of mediation, is the study by Lages & Montgomery (2005), which looked at how price adaptation in international markets mediates the link between export assistance and short-term improvement in export performance. Whilst the results were

inconclusive and even opposite to what they expected, the use of adaptation as a means of measuring internal transformations to external stimuli merits further research.

Researchers were encouraged by previous reviewers (e.g., Sousa et al., 2008) to use of control variables in their model specification. That notwithstanding, fewer than half of the studies in the present review used them in their model specification. As indicated above, control variables are important for reducing error terms and increasing the statistical power of models. So, of the 46 studies reviewed, twenty-one specified at least one control variable, which equate to 46% of studies. In spite of this, a consensus on control variables appears to be emerging in the literature. Researchers appear to be coalescing around a firm's physical resources as the main source of control variables. This is important because firm's physical resources are not normally sources of sustained advantage, so where they have been found to have a material impact on performance for their own sake they should be controlled to reduce the chances of presenting misleading results. In total, 61 control variables were used of those firm size (26%) and international experience (13%) were most frequently used. On balance, the size of the firm and experience are positively linked to export performance, that is, the larger the firm or level of experience the better the export performance. As this is a largely accepted view, there is little benefit in failing to consider controlling for firm size or indeed international experience as these can only return results that are less valuable than if the researcher would have otherwise controlled for them. It is important that researchers consider the inclusion of control variables in the model specification; at the very least they should consider firm size.

2.2.6 Framing the antecedents of export performance

Taking into account the findings from the present review, the conceptual framing of export performance should take into account four key variables: antecedents; moderators; mediators and controls (also deployed by Zou and Stan (1998) and Sousa et al. (2008)). The framing of export performance takes into account both the internal and external factors that impact export performance as posited by earlier reviews. Firm resources such as organisational capital resources, human capital resources and physical resources represent the internal drivers of export performance. The review revealed the highest proportion of operationalised drivers of export performance was under organisational capital resources. Human capital resources are also operationalised, but not as frequently as organisational capital resources and few studies still include physical resources as drivers of performance. The external factors should be operationalised by

the inclusion of moderating and/or mediating variables in model specification. The moderating variables would most frequently be centred on environmental turbulence, which takes the form of competitive intensity and/or market dynamism or iterations of these. The application of moderation and mediation variables is in its infancy but its inclusion would allow the researcher to also test for the effect of the environment from an internal perspective, which is taking into account transformation in processes caused by environmental stimuli. The best example in the literature of this is the use of adaptation as a mediator variable between firm resources and performance. Certainly, the framework also includes control variables similar to previous framework recommendations. The consensus emerging from the literature is that some aspect of physical resources should be used to control any unnecessary error terms or poor model specification.

2.3 Research gaps

The review also unearthed a number of areas where scholars could make additional contributions and thus help improve the overall understanding of export performance. Firstly, there is limited use of past export performance as an antecedent of current year export performance. In recent years, Lages et al. (2008) have included past export performance as a driver of export performance yielding mixed results. They indicated that prior export performance exerts complex effects on marketing strategy and export performance. The effects, they continued, vary depending on the individual aspects of performance. They posed the following question for future researchers: How does past performance affect export performance, particularly when different measures of past performance are negative or positive? This leaves space to examine past export performance as a higher order aggregated variable, which is usually the case for current year export performance (Lages & Montgomery, 2001). Whilst individual items of performance may be negative at certain points, it is the collective performance measure that ultimately matters (e.g., Sousa et al., 2008). The recent introduction of past export performance as a driver of export performance offers clear benefits in comparison to other model or framework of analysis which may exclude it.

Second, the results of individual resource-based drivers of export performance remain inconclusive with items returning conflicting effects on export performance. As noted above, scholars are starting to deploy other measures such as a firm's areas of advantage or capabilities as drivers of export performance. So far scholars have looked at areas of competitive advantage such as brand advantage, service advantage, product

and cost advantage but not business capabilities[3]/advantages such as market linking, technology, information technology and marketing. The rationale for conducting further research in this area is evident in the very definition of capabilities posited by Day (1990) where firm capabilities are described as complex bundles of skills and accumulated knowledge that enable firms to coordinate activities and make optimum use of their assets to create added value. As the capabilities of firms take into account all their resources, research into the use of capabilities as an overall or higher order driver of export performance becomes very important, due to the conflicting findings emanating from resource only drivers of the same. In other words, capabilities (as an area of competitive advantage) are sparingly used as antecedents of export performance, even though they are the ultimate sources of firm advantage. So whilst it is important to understand how firm resources affect performance, they only underpin firms' capabilities and therefore further research should be carried out at this level.

Third, further contribution can be made in the use of more complex frameworks to explain export performance since the tools are now available to do so. It was noted in the review that some studies do not even consider the use of moderator variables in their framework (or at least do not mention them) depriving them of the chance to test whether other indirect effects may be affecting the direction and strength of their drivers of export performance. Similarly, fewer studies still consider the mediating effects of variables. Indeed, mediating variables are a new addition to framework development with its deployment increasing since the review by Sousa et al. (2008). A variable operates as a mediator to the extent that it accounts for all or part of the relationship between an independent and dependent variable (Baron & Kenny, 1986). The moderating and mediating effects of variables are not depicted simultaneously in any of the studies reviewed. This specific gap in the study of export performance is of particular interest for this study and its aims require that these analytical boundaries are tested. As denoted by Hair et al. (2014), this is made possible with the use of advanced multivariate technique such as SEM, which is increasingly being used to model the complex issues impacting export performance. Going forward, more empirical research is needed on the analysis and understanding of the indirect relationships in the study of export performance; a point

[3] It should be noted that the word capabilities is widely used in the literature but the capabilities being referred to here are activities that firms do comparatively better than their competitors as noted earlier in this chapter.

that was also posited by Lages and Montgomery (2001), Sousa et al. (2008) and indeed was noted in this systematic literature review.

Fourth, little attention has been given to the use of adaptation strategies (levels of adaptation/standardisation) as an interaction or moderator variable between independent variables and export performance. It is important to consider this area of research because in the short term, success is founded upon the ability of firms to learn when faced with environmental changes and adapt continuously even when the firm is performing well (Lages et al., 2008). However, Dow (2006) indicated that adaptation may be dichotomous as firm may have a systematic bias to under-adapt, meaning that they have an all or nothing approach to adaptation. Lages et al. (2008) highlighted another gap and encouraged researchers to determine whether adaptation strategies have been changed from one time period to another in response to past export performance. In which case, more research is needed to further explicate the moderating role of short-term adaptation strategies on export performance.

Fifth, geographical gaps remain in the study of export performance especially in parts of Africa, Asia and in the Caribbean. Studies in these areas will certainly add to the ever-increasing body of literature. Specifically, this enables scholars to apply current scales and test relationships on firms based in countries with emerging markets. The geographical gap in export performance research limits the generalisability of research findings to some extent (Lages & Montgomery, 2001). Sousa et al., (2008; p 346)) indicated that "there is a void in the literature, as certain parts of Asia, South and Central America, the Caribbean and Africa have received little or no attention from researchers". It is therefore important to consider how the establishing theory in export performance applies to firms that are located in these countries.

Sixth, the literature review also revealed a gap in the analysis of export performance model with regard to a lack of multiple group analysis. In other words, results are largely viewed as a whole and are not broken down into subgroups to determine whether there are differences between varying groups of firms. This is a challenge that is particularly acute in the use of cross-sectional data when explaining possible relationships between variables because it is based on the assumption that variations between variables over time and/or between cases are constant (e.g., Bowen & Wiersema, 1999). Indeed, limited consideration is also given to the testing for heteroscedasticity across samples (Sousa et al., 2008). Heteroscedasticity can be described as the lack of a common or average variance amongst variables for the sample, meaning that some groups within that sample

have different characteristics to the overall sample (Amemiya, 1994). In the event that there are possible group differences, the overall model may be misleading. The limited use of multi-group analysis in general export performance studies is an area that merits more attention.

The individual areas of interest or gaps mentioned in this subsection are brought together to introduce a completely new model for examining export performance. The model will posit that firm capabilities mediates the relationship between past export performance and current export performance and that relationship being moderated by adaptation strategy, taking inspiration from scholars such as Lages and Montgomery (2001), DeSarbo et al., (2007) and Lages et al., (2008). In making a contribution to this area, future scholars will have a greater understanding of how past export performance links with firm capabilities and adaptation strategies to driver current year export performance in the short term. Whilst controlling for a number of variables that will be introduced later, *post hoc* the model will be tested for variation between multiple groups[4] of firms.

2.4 Summary

This chapter carried out a comprehensive review of the literature on the concept of export performance. The literature review comprised two parts. The first part assessed a series of authoritative literature reviews, which covered the period of 1964 to 2005. The findings provided a comprehensive assessment of the direction of travel in the understanding and operationalisation of the concept of export performance (Madsen, 1987; Aaby & Slater, 1989; Zou & Stan, 1998; Sousa et al., 2008). Secondly, a systematic review of 46 empirical studies published after 2005 was also conducted using the approach employed by Sousa et al. (2008). The systematic review's aim was threefold: first, to represent the state of the art in export performance research in the recent past, by describing the existing conceptual articles; second, to come up with a comprehensive list of factors that influences a firms' export performance; and third, to identify new opportunities for research.

The chapter ends by importantly identifying a number of key gaps in the understanding of export performance, of course under the guidance of the research aims and objectives presented in the first chapter. Specifically, the systematic review unearthed

[4] The firm groups will be explained more fully later but they are firms operating in low R&D intensity industries and medium-high R&D intensity industries.

a number of key gaps of interest which merited further research. These were in areas such as: the role of past export performance as a driver of export performance and how that relationship is partly mediated by firm capabilities; firm capabilities as a driver of export performance; the moderating effects of adaptation strategy on the relationship between firm capabilities and performance; the need for multiple groups analysis; and research in areas with emerging markets such as the Caribbean. Lastly, taking into account the direction of travel in the export literature as well as the gaps highlighted here, a new model was introduced to help provide an alternative explanation for the export performance of firms. In broad terms, the model proposes that firm capabilities moderates the relationship between past export performance and current export performance and that relationship is moderated by firms' adaptation strategy. This integral model is the input for the remainder of this thesis and its theoretical underpinning and conceptual framework are presented in the next chapter.

CHAPTER 3. CONCEPTUAL FRAMEWORK

Having established the gap in the literature in the previous chapter, this chapter presents the theoretical basis for this research project by setting out the conceptual framework and developing the study hypotheses. The final model looks to explain export performance by examining the interaction between past export performance, firm capability, adaptation strategy and current year export performance. The study contributes to and draws from two theories: organisational learning and resource-based view (RBV) theories. Aspects of organisational learning theory indicate that past performance is an important source of exploitative learning (March, 1991). For firms, this is a key source of path confidence in the way they do business and add value, thus encouraging them to continue to invest and pursue their areas of capabilities. RBV theory indicates that firm capabilities are the source of a firm's competitive advantage as they represent intangible resources which are valuable, rare, imperfectly imitable and non-substitutable (Barney, 1991). As will be explained in full below, it is these broad ideas that form the basis for the underpinning framework in this study.

The conceptual model is a moderated mediation model, which explores several direct and indirect relationships. The direct element shows the effects of past export performance on firm capabilities and current export performance. It also shows the direct effect of firm capabilities on export performance. The indirect element is denoted by the mediating role that firm capabilities play between said performance and current year export performance. The indirect relationship is then moderated by the firms' adaptation strategy. Overall the model theorises that firms that register high levels of satisfaction with past export performance would expect to return high levels of export performance, in part because this would lead to higher commitment in their export venture and capabilities, which they would look to sustain. However, the effects of firm capability on current export performance would be moderated by firms' adaptation strategy.

3.1 Theoretical Background

3.1.1 Organisational learning theory

Organisational learning theory, advanced by Cyert and March (1963), suggests that organisations are cognitive entities that learn via interacting with the environment (Bell DeTienne & Thompson, 1996). The perspective can also be defined as knowledge acquisition "by encoding inferences from history into routines that guide behavior" (Levitt & March 1988, pp. 320). At its most elementary level, organisational learning is the process of improving firms' actions through better knowledge and understanding of

past events (Dickson, 1996; Fiol & Lyles, 1985). Other prominent scholars have also provided alternative definitions and conceptualisations of organisation learning (e.g., March 1991; Lages et al., 2009; Chung et al., 2019) without an actual consensus on its definition emerging from the literature. In developing the theory three common themes emerged (Lant, Milliken, & Batra, 1992; Lages et al., 2008), which are: a) the difference between goals and results acting as a signal of failure or success (e.g., Levinthal & March, 1981); b) firms having a number of performance goals, which are then compared with performance outcomes (e.g., Lant, 1992); and c) the difference between goals and results influencing managerial action and change within firms (e.g., Levitt & March, 1988; Lant & Mezias, 1992). These themes are widely used in the models that utilise organisational learning theory to explain firm behaviour.

Managers try to understand the causal link between firms' actions and outcomes in the environment in which they operate. This is achieved when management work to identify associations between behaviour within the firm that are linked in positive and negative outcomes (Brouthers et al., 2009; Li et al., 1999). Managers repeat those behaviours that drive positive outcomes and eliminate those that result in negative outcomes (Lages et al., 2008; Levinthal & March, 1981). Firms closely monitor their activities, keeping the ones that are associated with positive performance and looking to modify or eliminate those that are linked to negative performance. Focal to this strand of organisational learning is, on the one hand, organisational outcomes of a firm's performance and on the other, antecedents of prior performance and strategies. In the context of this research, this would mean that past performance is closely compared with current year performance expectations, and where performance does not meet management's expectations, strategies and behaviours are modified with strong emphasis on those activities that are believed to enhance performance, and the opposite for those that are believed to decrease performance (Lant, 1992). A general model of organisational learning views the antecedents of performance as derived from strategies that are as a result of management decisions based on past performance and environmental forces (Lages et al., 2008, Lant et al., 1992). In this setting, a firm's current year export performance would be influenced by management decisions that are based on assessments of past performances or outcomes.

Learning is a significant constituent of a firm's internationalisation process (Mac & Evangelista, 2017). Importantly, a firm's knowledge related to overseas markets shapes the decision of internationalisation (Schmidt & Sofka, 2009); such that knowledge of

foreign markets serves as a fundamental driver to firms' internationalisation process (Henri, 2006; Moini, 1997). In line with organisational learning theory, internationalisation is closely linked with a firms' learning orientation (Yeoh, 2004). Some firms start to internationalise sooner than others to take advantage of "learning advantages of newness" (Zahra, 2005), conversely others initiate an internationalisation process through an incremental progress based on knowledge accumulated from experience (Johanson & Vahlne, 1977). This notwithstanding, firms operating in international markets cultivate their learning activities and create a foundation for further learning (Baker & Sinkula, 1999; Yeoh, 2004). Organisational learning fed by overseas operations enables internationalised firms to overcome the challenges they face by operating in foreign markets especially in the early phases of internationalisation or when entering new markets (Westhead, Wright & Ucbasaran, 2001; Zaheer,1995) and to expedite internationalisation practice (Pla-Barber & Escribá-Esteve, 2006). In international business, organisational learning plays an essential role in gaining success (Brouthers et al., 2009; Li et al., 1999; Nguyen & Nguyen, 2010). Firms that are oriented to learning from past outcomes in their international ventures are more likely to attain superior performance in international markets (Kungwansupaphan & Siengthai, 2014), since continuous learning enables the sustainability of these firms by preventing possible mistakes (Wang, 2008).

3.1.2 Resource based view

The RBV takes an 'inside-out' view or firm-specific perspective on why firms succeed or fail in the marketplace (Penrose, 1959; Dicksen, 1996). The resource-based view (RBV) of the firm puts forward the premise that firms compete based on a unique set of resources (Wernerfelt, 1984; Barney, 1991). The resources must have four attributes to generate a sustainable competitive advantage: (1) the must be valuable; (2) they must be rare among current and potential competitors; (3) they must be imperfectly imitable; and (4) there cannot be strategically equivalent substitutes for the former attributes (Peteraf, 1993; Barney, 1991; Campbell & Luchs, 1997; Hamel & Prahalad, 1996; Teece 2014). Resources that are valuable, rare, inimitable and non-substitutable make it possible for firms to develop and maintain competitive advantages, and to utilise these resources and competitive advantages for superior performance (Collis & Montgomery, 1995; Grant, 1991; Wernerfelt, 1984). These resources tend to survive competitive imitation when protected by isolating mechanisms such as time-compression diseconomies, historical uniqueness, embeddedness and causal ambiguity (Barney,

1991). RBV helps managers of firms to understand why competences can be perceived as a firms' most important asset and, at the same time, to appreciate how those assets can be used to improve business performance (Teece, 2014). RBV of the firm accepts that attributes related to past experiences, organisational culture and competences are critical for the success of the firm (Campbell & Luchs, 1997; Hamel & Prahalad, 1996).

More specifically, resources are broadly defined as assets, organisational processes, firm attributes, information, or knowledge controlled by the firm which can be used to conceive of and implement their strategies (Learned, Christensen, Andrews & Guth, 1969; Daft, 1983; Barney, 1991; Mata et al., 1995; Bharadwaj, 2000). Resources can be classified as physical resources, human resources and organisational resources (Barney, 1991; Amit & Shoemaker, 1993) or indeed tangible, intangible or personal-based resources (Amit & Shoemaker, 1993; Itami & Roehl, 1987; Hall, 1993). Tangible resources included financial capital and the physical assets of the firm such as plant, equipment, and stocks of raw materials. The intangible resources covered assets such as reputation, brand image, and product quality (Grant, 1991). Brumagin (1994) presented the hierarchy of resources associated with the levels of corporate resources, which are of particularly interest for this study in the sense that they introduce the hierarchy of resources from the basic to the more sophisticated: production/maintenance resources (considered the most basic or lowest level); administrative resources; organisational learning resources; and strategic vision resources (considered the most advanced or the highest level). All firms possess a wide spectrum of resources and capabilities which are used to achieve a firm's strategy (Teece, 2014). As such, resources and capabilities are fundamental underpinnings of any source of advantage (Rumelt, Schendel & Teece, 1991). Valuable resources are termed strategic assets (Barney, 1991; Amit & Schoemaker, 1993). The RBV asserts that ownership and control of strategic assets determines which organisations will earn superior profits and enjoy a position of competitive advantage over others.

In order to sustain competitive advantage, there has to be a non-duplicatable advantage (Barney 1991). Sustained competitive advantage is an advantage that continues to hold after efforts of others to duplicate the advantage have ceased (Barney, 1991; Lippman & Rumelt's, 1982; Rumelt, 1984) This advantage will not necessarily be sustained forever but it will not be competed away or easily duplicated by the efforts of others (Barney, 1991). Sustained advantages may be challenged when unanticipated changes in the economic structure of an industry occur. Such unanticipated changes,

therefore, can make what was a source of sustained advantage no longer a source of advantage (Teece, 2014). Therefore, a firm enjoying a sustained competitive advantage when faced with unanticipated shocks may experience a major shift in the nature of competition and any sources of sustained competitive advantage may be nullified. A sustained competitive advantage may only be made when resources are strategic and valuable, are heterogeneously distributed and imperfectly mobile.

Lastly, RBV has been widely used in international business studies to establish links between export performance and resources and/or capabilities (see examples in the literature in the previous chapter; Sousa et. al., 2008; Kaleka, 2011). Researchers tend to use the lower level resources as characterised by Brumagin (1994) as drivers of export performance with less research being carried out into the higher order resources such as firm capabilities, which is the focus of this study (Sousa et al., 2008; Amit & Schoemaker, 1993; Vera, Crossan, & Apaydin, 2011; DeSarbo, et al., 2007; Bharadwaj, 2000). Increasingly firms in countries with emerging markets must enter international markets to survive (Stoian, et al., 2011; De Noni & Apa, 2015). Given the dynamism of these markets, exporting firms must find ways to identify and sustain their areas of competitive advantage (De Noni & Apa, 2015). To this end, RBV, being an "inside-out" view of the firm, is used to establish those links between firm capabilities and export performance, and as these relate to firm sustainability (e.g., Sousa, et al., 2008; DeSarbo et al., 2007; Vorhies, Orr & Bush, 2010; Kaleka 2000; Miocevic & Crnjak-Karanovic, 2011). It is also used in combination with organisational learning theory to establish a conceptual model that helps explain the export performance of Caribbean manufacturers.

3.2 Conceptualisation of Export Performance

3.2.1 Defining export performance

The literature review chapter provided an account of the existing conceptualisations and definitions of export performance, and the different approaches that exist. This section outlines the particular approach taken in this study as a foundation for the resultant theoretical model developed. This study defines export performance as:

> *"The composite outcome of firms' international sales, using direct or indirect methods, of products produced in their home country".*

This definition views export performance as a concept that is expressed through multiple dimensions, which is in line with most studies in the international business literature. As will be seen below, export performance outcomes can be economic (e.g., sales and profit related) or non-economic (e.g., strategy related) and goods can be sold

directly to international customers or through third party agents or distributors. The definition suggests that exporting firms have no control over foreign operations compared with firms engaging in other types of international activities, such as joint ventures or wholly owned subsidiaries.

3.2.2 Considerations when conceptualising export performance

An agreed definition for export performance is yet to be established in literature as researchers continue to explore a disparate number of constructs when conceptualising and even operationalising the phenomenon (Cavusgil & Zou 1994; Shoham 1998; Sousa 2004). Results from the systematic literature review undertaken in the previous chapter reveal that the number of constructs being deployed by researchers to explain export performance continues to be plentiful. For the 47 articles that were reviewed, they contained 46 separate performance indicators[5] compared with say 50 indicators (43 articles) reported in the Sousa's 2004 review of the previous decade.

Using the same nomenclature of indicators used by Sousa 2004, most indicators fell under the sales, market, profit and general related categories with the largest proportion of separate indicators being market related (21 or 45%). This is followed by executive-level (13 or 28%), sales (7 or 15%) and profit related (2 or 4%) measures. Additionally, this review, unlike earlier ones, has noted an emerging area, which is technology related (3 or 6%) measures of export performance. Zou et al. 1998 also presented an alternative classification for export performance indicators around which a consensus seems to be forming: financial, strategic and satisfaction-based categorisation. The greater proportion of these indicators was strategic measure (19 or 41%) followed by financial (11 or 24%) and overall satisfaction (4 or 9%) performance indicators. Other indicators (12 or 26%) have also been used to measure export performance in recent studies such as organisational learning, relationship, product and stakeholder related. Many individual indicators used for measuring export performance persists which restricts the advancement of an agreed definition but in this study, the financial, strategic and satisfaction-based operationalisation of export performance will be adopted.

Most studies in the review for this study pursued a subjective rather than an objective approach to measuring export performance. Objective measures are those that are based on absolute values whereas subjective measures are those based on the

[5] Admittedly, articles from Papadopoulos and Martin (2010) and Durmusoglu, Apfelthaler, Nayir, Alvarez, and Mughan (2012) used 10 and 18 performance indicators respectively.

respondent's perception of performance (Sousa, 2004). Forty-two studies used an exclusively subjective approach, four used a combination of objective and subjective approaches, and only one study used an exclusively objective method. This finding lends support to a growing tendency amongst researcher to use subjective data over objective ones to measure the export performance of firms. This trend is being driven by a number of well-argued reasons such as: the difficulty of fixing reference points across firms given that financial success for one firm for example may mean failure for another (Lages & Lages, 2004); firms tending to be reluctant to give researchers objective data as they could be confidential (Leonidou, Katsikeas, & Samiee, 2002); objective data not being widely available in the public and therefore the impossibility of determining the accuracy of any reported financial performance figures (Robertson & Chetty, 2000); comparative analysis between firms would be rendered impossible if objective rather than subjective data were used especially across countries where varying accounting and sales recording practices could be deployed (Baldauf, Cravens, & Wagner, 2000); and firms being largely guided by subjective perception of export performance rather than objective performance ratings (Madsen, 1989). Research has also found that subjective and objective measures are positively associated (Dess & Robinson, 1984) meaning that results returned from subjective data are on the whole similar to those returned from objective data. For these reasons, subjective measures are good indicators of performance.

In regard to the classification of export performance measures, sales related measures are important for determining performance as they are widely used by scholars in their conceptualisation of export performance. Sales-related measures can be best described as all aspects of cross-border activities that deals with the selling of products and services; including elements such as intensity, volume and/or growth (Sousa, 2004). As indicated above, there are separate sales-related measures of performance but one or a combination of these were used a total of 75 times in the 47 studies reviewed representing a third (33%) of all the indicators used to measure export performance. The most frequently used sales related measure was export sales growth, representing 29% of all its measures. This was followed by sales volume (21%), sales revenue (13%), and export intensity (13%) (explicitly defined in some studies as export sales to total sales ratio) and a generic sales measure (12%). On the other hand, scholars were least likely to use items such as return on sales (5%). Regarding the latter, the author is only stating the fact as observed in this review but no reason(s) for this can be provided apart from researchers wanting to use measures that appear to be achieving a degree of consensus in

the literature. Sales related indicators are key constituents in the measurement of export performance going forward particularly items such as sales growth and volume.

In the process of obtaining a working definition of export performance, market-related measures make a significant contribution in this respect because, like sales-related measures, they are used frequently as a measurement of performance. In his qualitative analysis of interviews with top executives, Madsen (1998, pp. 89) indicated that market-related measures or more specifically market share measures are strategic indicators of performance as "high market share leads to scale and experience advantages on the cost side as well as more power in approaching customers". Whilst it is widely used in this review, the measure has been proven difficult to measure and has indeed come under criticism (Sousa, 2004). In this review for example, 21 separate measures were used as market-related measures more than any other thus providing further support about the difficulty in articulating a position on this. Specifically, the most mentioned measure in the review is export market share (37% of all market-related measures). Other measures are awareness and image of firm in foreign markets (14%), export market margins (5%) and relationship with export customers (5%). The other 17 measure are used only 1% or less of the times indicating that scholars are still experimenting with terms to represent market related measures outside the most commonly used ones. The findings in the review reveal, in the end, that market related measures are necessary components for consideration in arriving at an overall working definition of export performance going forward, particularly the use of export market share, even though the measure may come under some criticism when agreeing on an indicator.

A number of measures, which can only be described as executive level or related measures, are also important in operationalising export performance as they are frequently used by scholar in this area. Measures falling under this category include senior managements' satisfaction with items such as overall export performance, export success, meeting expectations and strengthening strategic positions. The rationale for using such measures is that senior management may have reasons other than just economic (sales and profitability) for international business and that factors such as the firm's strategic position and competitiveness could be their main concerns (Madsen, 1998; Sousa, 2004; Solberg 2002). Indeed, only senior management really knows the export goals and objectives of their firm and therefore success may include aspects of performance which are strategic in nature and as a result satisfaction in these areas should be considered as a component of export performance (White, Griffith, & Ryans, 1998). Scholars largely

accept the inclusion of executive-related measures in their conceptualisation of export performance as indicated earlier. Specifically, views on level of satisfaction with overall export performance (33% of all executive-related measures) is most commonly mentioned, followed by export competitiveness (13%), strengthened strategic position (13%), customer satisfaction and meeting objectives (each 7%). These executive related measures and others provide senior management with a strategic and holistic dimension of performance. Therefore, where levels of satisfaction are not met, irrespective of what occurs with the more economic measures, a firm can view its performance in international markets as unsuccessful. In this case executive-related measures are rightly a necessary indicator in determining the export performance of firms.

In this review, profit related measures emerged as a measurement indicator of significant prevalence. The profit-related measures are conceptualised as: export profitability, export profitability growth, export profit to total profit, and export profit margin. Profit related measures are viewed as advantageous in as much as they tend to avoid the need for evaluating or taking into account a firm's product characteristics (e.g., technology level quality etc.) as well as managerial competence (Bilkey, 1982). Notwithstanding Bilkey's assertion regarding technology, some scholars are separately starting to consider technology and organisational learning-related measures of export performance such as: "adopting innovative manufacturing methods and/or technologies", "improving production/operating efficiency" and "gaining access to new technology" (Durmusoglu et al., 2012). In terms of export profitability, an iteration of it was used in 39 studies mostly as a standalone measure ("export profit") without a descriptive such as growth, pre-tax or margin. The profit-related measure of export performance had the highest level of consensus amongst researchers as it contained fewer individual items or indicators, mirroring results found in the Sousa's (2004) review. The profit-related indicators are exposed to similar criticisms as those levelled at the sales-related measures; none more so than firms having varying accounting practices hinders comparability (Lages & Lages, 2004) but the impact of this seems to be mitigated when subjective measures are utilised. In a multifaceted description of export performance, the inclusion of export profitability is well supported in the literature.

The literature also includes other forms of classification apart from those presented above, mainly grouping measure under financial and non-financial measures. Researchers used 11 separate financial indicators with the most commonly mentioned being profitability (38 studies), sales growth (22 studies), sales volume (16), sales revenue (10)

and sales intensity (10). Amongst all the financial indicators, export profitability was used 30% of the times making it a strong item in measuring export performance. In regard to the non-financial indicators 35 separate items of measurements were used in the review period. More than half of these measures could be described as strategic indicators with 19 separate measures. Scholars were most likely to include the following in their operationalisation of export performance: market share (21 studies), awareness and image of firm in foreign markets (8), strengthened strategic position (7) and export competitiveness (7). Export market share represented three fifths (60%) of all the strategic indicators. Overall satisfaction measures (4 separate indicators) were also provided as non-financial measures of performance. These are: satisfaction with overall export performance (18 studies), meeting expectations (3 studies), competitors' view on firm's export performance (3) and export success (2). Indeed, satisfaction with the overall export performance measure is the most widely used item amongst the non-financial measures representing about half (51%) of the measures. Emerging from the literature are several other measurement indicators of performance such as organisational learning and stakeholder measures (e.g., Durmusoglu et al., 2012), relationship (e.g., Lages, Silva, & Styles, 2009), and product-related measures (e.g., Theodosiou & Katsikea, 2013). The financial/non-financial nomenclature of measures is widely deployed in the literature so the measurement of export performance in such a manner is widely used.

Export performance is largely viewed in the literature as a multifaceted variable as most scholars operationalise it using several measurement indicators. Of the 47 studies reviewed, only five used a single item to measure performance (D'Angelo, et al., 2013; Souchon, et al., 2011; Solberg & Durrieu, 2006; Sorensen & Madsen 2012; Yi et al., 2013), all the others used several measures. The approach of using multiple measures to understand export performance, in the view of scholars, seems to suggest that it would lead to more accurate results (Sousa, 2004). Madsen (1987) introduced a multi-dimensional measurement of export performance in his Strategy → Structure → Performance (SSP) paradigm which suggests that three sets of variables work together to influence performance. The three variable sets were organisational, environment and strategy which included subdivisions such as sales, profits and change. Notably, these subdivisions can have conflicting effects on performance and indeed may be of varying priority for senior management (Shoham, 1998). For example, a firm might look to pursue a strategy of sales volume maximisation (or market share) and that may conflict with profitability, whilst other firms may pursue profit maximisation which would be in potential conflict with sales volumes in the short term as it would look to set higher prices.

A multiple dimensional measurement of export performance should give a more holistic view of results but scholars would have to bear in mind the potential conflict between the different groups of variables.

The use of multi-variables to measure export performance has increased the complexity with which performance is analysed particularly regarding the use of reflective and/or formative indicators. The review revealed that most scholars use reflective rather than formative indicators – 43 studies used reflective indicators, 2 formative indicators and 2 a combination of reflective and formative indicators to measure performance. The use of reflective indicators can be described as a latent variable which causes the observed variables, whereas formative indicators cause rather than being caused by the latent variable measured by the indicator (Diamantopoulos, 1999). In other words, in the case of reflective indicators, changes in the latent variable would mean changes in all indicators since they are highly correlated and interchangeable, whereas in the case of formative indicators, changes in the latent variable is not necessarily accompanied by changes in all its constituents. This is an important consideration in the operationalisation of export performance measurement because conflicts among performance indicators persist in the literature (Donaldson, 1984). For example, and this was mentioned in the previous paragraph, a firm with a growth strategy (goal of improving sales volumes or sales) is not necessarily correlated with profit maximisation so positive change in export performance (a latent variable) would not necessarily mean a change in sales growth and profitability (Diamantopoulos, 1999). Whilst most scholars use reflective indicators to measure export performance, scholars would need to consider the possibility of using formative indicators where aspects of the multifaceted performance measures are conflicting.

Export performance is mostly measured as a static rather than dynamic measure because the majority of scholars conceptualise performance for a given point in time. The time related measure reported in the literature could be static (i.e., measuring a given point in time) or dynamic (indicating change between periods of time) (Carneiro, Rocha & da Silva, 2007). Madsen (1998) indicated that “managers' maps of export performance [were] often very static, narrow, and short-term oriented” and it appears research largely takes the same form. Used as a main motivation, Lages and Lages (2004) proposed and validated (in Portugal and the U.K.) short-term export performance sub-scales coined STEP. The study looked at the levels of satisfaction with short-term performance improvement (e.g., export sales volume, export profitability, market share and overall

export performance), short-term export intensity improvement (e.g., percentage of exporting venture to total sales volume, percentage of exporting venture to total profitability), and expected short-term performance improvement over a one-year period (e.g., export sales volume of the export venture, export sales profitability of the export venture). This paper was a seminal paper in introducing a dynamic element to the measurement of export performance, at least in the authors view. Whilst the majority of studies (32 or 68%) in this review employed a static measure of export performance, three in ten (14 or 30%) used a form of dynamic measure and in the case of Knight and Kim (2009) a combination of both. The majority of dynamic indicators (9 of 14studies) used a time frame of three years. This dynamic aspect of export performance measurement will only assist in arriving at a more comprehensive construct.

To sum up, the conceptualisation of export performance is a complex process which needs to consider several factors. It would need to consider whether variables are subjective – recording respondents' perception of performance or objective – requiring actual business performance figures such as exact profitability numbers. In the literature, export performance is largely viewed as multifaceted with indicators being financial (e.g., sales and profit) or non-financial (e.g., overall satisfaction). Further, scholars would need to determine whether the explanatory indicators of export performance are reflective or formative in nature. Reflective explanatory indicators are where the (observed) indicators of performance are considered or assumed to be effects or manifestations of a (latent) performance factor. Formative explanatory indicators are where the (observed) indicators are assumed to 'cause' or determine performance. Export performance is also conceptualised as being a static measure – taking into account one point in time; or dynamic measure – comparing performance over a period. Taking all these factors into consideration, for this study, the phenomenon of export performance is conceptualised as a multifaceted, reflective and static measure. The operationalisation of export performance is presented in the methods chapters.

3.3 Proposed model of export performance

The review of the literature presented in the previous chapter has identified gaps in the treatment of both antecedents and outcomes of export performance when approached from both an organisation learning and RBV perspective. To that end, this section develops a model of export performance which integrates the key drivers, mediator, moderator and outcomes. The general logic concerning the identification of antecedents, mediator, moderator and outcomes is presented first, also conceptualising the

relationships between these. Based on this general view, the specific research hypotheses are developed, and a causal model proposed, based on three main types of relationships.

3.3.1 Drivers of export performance

3.3.1.1 Past export performance

Building on organisational learning theory, past export performance influences export performance because past outcomes have a cumulative impact on current actions and outcomes. While export performance signals the effectiveness of the strategy modifications made by managers and sets forth new strategy actions, past performance motivates managerial strategy actions (Lages & Montgomery, 2001; Lages et al., 2008). This requires firms to collect information systematically about markets so that they can develop improved understanding and contact with said markets (Craig & Douglas, 1996). Specifically, this includes information on past export performance being utilised for firm's decision making and help influence management's overall perceptions of performance (Lages et al., 2008). Satisfaction with export performance depends on an aspirational goal which in turn depends in most part on the history of past performance (Gavetti, Greve, Levinthal & Ocasio, 2012). Based on this rationale of organisational learning, firms operating in international markets will accumulate information based on their time in these markets and an increase in this information helps secure their survival and allow for more effective performance (Day, 1994). The reinforcing effect of this feedback loop is related to the phenomenon of path dependence where success in the past produces a tendency toward similar behaviour in the future (Cyert & March, 1963; Helfat, 1994). The relationship between past outcomes and current export performance will be positive since bounded rationality leads to a representation of choice as a semi-automatic process that is informed by the past and operates in the present.

Similarly, past performance has a positive effect on firm capability because firms are rule based, and seek to maintain their advantage by rarely violating the status quo. "Individuals do not maximise. They satisfice." (Gavetti, Greve, Levinthal & Ocasio, 2012, p.4) meaning that satisfactory past performance sends the signal that existing areas of competitive advantage are working satisfactorily. Satisfaction with overall performance is effectively a proxy measure of the effectiveness and efficiency of existing capabilities: both are directly linked, so that if satisfaction in past export performance increases then management's views on areas of the firm's capabilities is likely to be positive. Lages et al., (2008) presented this model to organisational learning which underline the following points: a) managers tend to set performance goals, which are

compared to past performance; b) then the discrepancy between these two acts a signal of success or failure of areas of advantage; and c) these discrepancies influence management action and organisational change. Past export performance provides a historical perspective, characterised by its ability to provide insights into the sustainability of such performance (Buckley, Pass & Prescott, 1988). The performance achieved is derived from past choices and initiatives, where firms would distinguish between positive and negative outcomes, repeating the positive actions and eliminating the negative (Levinthal & March, 1981). For these reasons, organisational learning theory rightly posits that past export performances would have a positive influence on firm capabilities.

3.3.1.2 Firm capabilities

Capabilities are the source of a firm's competitive advantage as they reflect the unique way a firm combines its resources. In advance of defining capabilities one must first view firm resources from two perspectives as noted earlier: a) those that cannot be purchased or imitated; and b) those that are difficult to replicate across the firm's boundaries (Barney 1991, Amit & Shoemaker, 1993, Peteraf & Barney, 2003). Resources which are easily acquired or imitated offer, at best, only a temporary basis for competitive advantage (Miller, 2003). The combination of these two aspects of resources tends to create a unique bundle of tangible and intangible resources which are described as the firms' core competences (Vorhies et al., 2010; DeSarbo, Benedetto & Song, 2007). However, in order for that firm to take full advantage of its resources and competences it must deploy its capabilities, which are the organisational processes by which available resources and competences are developed, combined, and transformed into valuable offerings for export markets (Amit & Shoemaker 1993; Day 1994; Eisenhardt & Martin, 2000). Day (1994, pp. 37) said "capabilities are the glue that bring assets together and allows them to be used to advantage". Capabilities are the bedrock of competitive advantage as they are difficult for competitors to imitate. Firms that cultivate successful capabilities over their competitors will have better performance (Peteraf & Bergen, 2003). Business may deploy similar resources but will not perform equally due to differences in their capabilities which lead to varying positional advantage in export markets (Barney, 1991; Grant, 1991; Jones, Harrison & Felps, 2018). Capabilities are high order firm resources in which most competitive advantage exists as they are difficult to imitate as a result of their very tacit nature.

Certainly, the notion of capabilities can be difficult to pin down because it could be endless, firm-specific and sometimes unmeasurable and/or unobservable. This notwithstanding, attempts have been made to classify them. For example, Day (1994) indicated that capabilities could be: inside-out, outside-in, or spanning process, and Helfat and Winter (2011) indicated that they could be viewed as being operational or dynamic, though they point out that it is quite difficult to draw a line between the two. Of interest to this study is the operational/dynamic capabilities nomenclature. The operational (ordinary) capabilities allow firms to continue to make existing products and services (Teece, 2014) whilst dynamic capabilities enable firms to make significant alterations in how they currently operate (Helfat & Winter, 2011). The operational capabilities are the sources of current competitive advantage which maintain the status quo (or with marginal improvement on the same trajectory) whilst dynamic capabilities look to sustain that advantage through significant change. As indicated, drawing a line between these two concepts can be blurred because change/modification of practice is constant - as nothing really stays unchanged the two concepts will necessary have some overlap. The modification of practices could be in the short term, meaning that firms adapt current practices (exploitation), or long term meaning significant changes or innovation in practices (exploration) (March, 1991). According to Teece (2014), operational capabilities are easily replicated internally within the firm though more difficult for competitors. It is for this reason philosophically, as well as the short term and cross-sectional data collection approach used in this study, that the conceptualisation of capabilities is largely operational.

The conceptualisation of capabilities for this study, drawing mainly from DeSarbo et al., (2006) and Day (1994), is linked to the effective utilisation of firm-controlled distinctive capabilities. Capabilities are conceptualised on an importance and an effectiveness dimension, since a capability that is not important cannot serve as a basis for competitive advantage (Teece, 2014). Further a capability, by definition, must be performed effectively (Day, 1994). Therefore, capabilities can only truly be conceptualised as existing relative to competitors (e.g., Grant, 1991; DeSarbo et al., 2007). In the international business literature, scholars used a disparate number of measures to capture firm capabilities with most only addressing certain individual aspects of firm capabilities, such as marketing capabilities (e.g., Vorhies, Orr & Bush, 2010), informational capabilities (e.g., Kaleka 2000; Miocevic & Crnjak-Karanovic, 2011), and relationship capabilities (e.g., Lages, Silva and Styles, 2009). Other scholars have conceptualised all-encompassing proxy indicators such as "perceived competitive

advantage" (e.g., Navarro, Losada, Ruzo & Dıez, 2010) or service advantage (e.g., Kaleka, 2011). The author outlined strong cases for conceptualising four individual aspects of capabilities: market linking; technology; marketing; and information technology (DeSarbo et al., 2006). These four functional capability measures used in this study provide a detailed and comprehensive overview of firm capabilities and how they would help drive export performance.

3.3.1.3 Adaptation strategy

Building on both organisational learning and RBV theories, for firms to sustain their competitive advantage in international markets they need to determine whether they adapt or standardise their behaviour, processes or offerings irrespective of changes in international markets. In undertaking this balancing act, firms need to consider two forces: economies of scale, and cultural diversity (Solberg, 2000 & Dow, 2006). In standardising processes and products across markets, firms could possibly achieve economies of scales in areas such as marketing, research and development and production (Theodosiou & Leonidou, 2003). Conversely firms may need to consider differences in markets, and adapt practices and offer to suit these export markets (Douglas & Wind, 1987). Identifying where to operate on this continuum continues to be a dilemma for managers and a point of research interest for scholars (Stoian, 2011). Firms that adapt their practices appropriately to their internal resource characteristics and to a given environment will on the whole outperform those that adapt inappropriate amounts (Szymanski, Bharadwaj & Varadarajan, 1993), meaning there is a degree of adaptation that optimises the export performance of the firms. Some firms have systematic resistance to change, meaning they stick with the status quo, and change processes and practices only under duress (Dow, 2007). This suggests the need for change may be higher than the occurrence of actual change. Bearing this mind, this study concurred with the more widely accepted view that adaptation occurs on a continuum from low to high and that firms will eventually meet the changing demand of customers and competitive pressures in foreign markets.

More specifically, adaptation in firm activities appears to have a mixed effect on export performance due to its complexity as a measure with some items showing positive impact and others negative. Adaptation to prices (Sousa & Bradley, 2008; Lages & Montgomery, 2005; Sousa, Lengler & Martinez-Lopez, 2014), branding and packaging (Brouthers, O'Donnell, & Keig, 2013), the marketing mix more broadly (Magnusson, Westjohn, Semenov, Randrianasolo & Zdravkovic, 2013), and international strategy

(Dow, 2006) have had a positive impact on export performance. The authors are indicating that adaptation in the way firms operate in these areas improve performance as they look to meet the needs of international customers in an ever-changing environment. This is because export ventures, as defined by product, industry and export market characteristics, and export marketing strategy, must be adapted so as to achieve strategy-environment co-alignment and subsequent positive performance (Cavusgil & Zou, 1994). Conversely Lages & Montgomery (2005) and Sousa and Bradley (2008) reported a negative link between price strategy adaptation and export performance in their studies of Portuguese firms. They posited that the Portuguese market tend to possess a low-cost advantage which is obtained by economies of scale and other reasons which allows Portuguese firms to price their product at local prices for the international markets since these markets have very elastic demand. There is also the view that firms that standardise export products can maintain consistent market position, quality and brand image in different markets (Whitelock, 1987) and in these cases adaptation may adversely affect performance. Notably, some firms are fitted to specific niche markets and are unable to adapt to change (McKee, Varadarajan & Pride, 1989). Therefore, adaptation strategies returned mixed results in the literature with respect to its effect on export performance.

Adaptation strategy has been conceptualised in various forms over the past few decades as researchers experimented with different theories and research designs. The literature has identified several ways in which adaptation has been measured; for example, scholars measured individual aspects of the marketing mix (e.g., price adaptation Sousa et al., 2014), the marketing mix overall (e.g., Lages et al., 2008) and indeed entire business strategies (Cavusgil & Zou, 1994). Early research into firm adaptation was largely based on contingency theory which explored levels of adaptation across markets and environmental factors (Cavusgil, Zou & Naidu, 1993). This approach provided strong theoretical footing as levels of adaptation would in large part dependent on environmental factors. Other researchers have only explored the relationship between levels of adaptation and firm performance without explicitly considering aspects of firm characteristics and the environment (Leonidou, Katsikeas & Samiee, 2002). The discrepancy in approach can in part be blamed on how adaptation is used in the literature: on the one hand it ranges from change that include both proactive and reactive behaviour (Miles, Snow, Meyer, & Coleman, 1978). On the other, relating to specific reactions to the environment or demand (McKee, et al., 1989). For this study adaptation strategy is viewed as the former, that is modifications (or lack thereof) that are as a result of firms attempting to align their capabilities through learning and thus incorporating both

proactive and reactive elements in anticipation of and reaction to exogenous and endogenous factors.

3.3.2 Relationship between past export performance, firm capabilities, adaptation strategy and current export performance

As noted earlier, export performance can be explained in different ways, but this study focuses on the contribution of past export performance, firm capabilities and adaptation strategy. Little research has so far investigated the interplay, as posited in the framework below, between past export performance, firm capabilities and adaptation strategy and current export performance, even though some studies have explored these items separately. Specifically, the following framework shows that past export performance has a direct impact on firm capabilities and current export performance. It also shows that firm capabilities have a direct impact on current export performance. The framework also considers the indirect impact of past export performance on current year export performance through firm capabilities and how that indirect relationship is moderated by firms' adaptation strategies. Certainly there are several other ways these four concepts can be configured but it is the view of the author that the framework as presented below is the most appropriate way of capturing learning from past export performance; firm capabilities; and adaptation strategies influence the export performance of firms taking inspiration from other authors (e.g., Jiang & Kortmann, 2014; Zhou, Wu, & Barnes, 2012; & Lu, Zhou, Bruton & Li, 2010; Lages et a1., 2008 Lages & Montgomery, 2001). Further research could also explore other configuration of the concepts.

3.3.3 Study outcomes

The conceptual model integrates a multifaceted variable of export performance which considers the key elements raised above. Export performance is measured using five separate financial and non-financial measures (something which will be operationalised in the methods section to follow). All the measures are subjective, meaning that only respondents' perception of performance is measured rather than actual business performance in the form of say an £x of sales. Indeed, the export performance measure is a latent variable with reflective indicators which are assumed to be the manifestation of firm performance rather than the cause. The study aims to incorporate the notions of organisational learning and RBV theories. Based on organisational learning perspective, past export performance is directly linked to firm capabilities and current year export performance. The RBV theory principles are used to develop the concept of

firm capability as an important factor in achieving superior export performance. However, the strength or weakness of the relationship between firm capabilities and current export performance is determined by firms' adaptation strategies as they respond to the dynamic nature of export markets.

The framework controls for firm size, international experience, type of international markets (emerging/developed), degree of internationalisation and number of international markets. These control variables are not of any particular interest for this study but they can have a material impact on export performance for their own sake (e.g., Brouthers, O'Donnell, & Keig, 2013; Brouthers, Nakos, Hadjimarcou & Brotuhers, 2009; Beleska-Spasova, Glaister & Stride, 2012; Lim, Sharkey & Heinrichs, 2006; Flor & Oltra, 2005; Sousa, Ruzo & Losada, 2010; Lages, Jap & Griffith, 2008). Therefore, the control variables were included to reduce the chances of presenting misleading results, by controlling for their effects in the model. Researchers mostly use firms' physical resources or characteristics as control variables as they are not normally associated with sources of advantage (Sousa et al., 2008; and literature review for this study). A total of 61 control variables were used in 46 randomly selected studies for the systematic literature review for this study demonstrating their widespread use. Firm size (26%) and international experience (13%) were most frequently used. Control variables mostly returned a consistent (positive or negative) impact on export performance (Chen et al., 2016; Sousa et al., 2008). For example, the larger the firm or greater its international experience the better the export performance.

3.4 Hypothesis development

3.4.1 Past export performance as a driver of capabilities and export performance

Past export performance is a strong indicator of current export performance as success in the past gives greater confidence in firms' processes and practices. As indicated earlier, the use of past export performance as an antecedent to current year performance arises from organisational learning theory (e.g., Teece et al., 1997). Learning from past events underpins all aspects of a firm's ability to sense and seize opportunities and respond against possible threats (Teece, 2014). This learning takes two forms as posited by March (1991): exploitative learning mostly in the short term to refine, choose, produce, select, implement, execute and make more efficient a firm's area of competitive advantage; and explorative learning which looks to make fundamental shifts in practices. The learning types tend to self-reinforce practices (Wang, Senaratne, & Rafiq, 2015) allowing firms to drive maximum gain in the short and long terms. In the short-term

learning from past performance reinforces exploitation on a firm's current trajectory, whilst in the long term, through exploration, it leads to whole new trajectories (Gupta, Smith & Shalley, 2006; March, 1991). Information about past export performance success informs the firm on exactly what it needs to do, and under performance-based reward systems, individuals are largely motivated to learn from success and take the actions that they associate with high performance (Daily et al., 2000; Wang et al., 2015). In this case past export performance has a positive influence on current export performance as only best practices among all observed successes matter.

Given the strong evidence provided above for the positive relationship between past and current year export performance, past performance has been deployed as a driver of performance in only very limited international business studies. That said Lages, Jap & Griffith (2008) appear to be the first scholars to conceptualise past export performance as a driver of export performance. In their study of Portuguese firms, they returned partial support for their hypothesis that export intensity, performance achievement and performance satisfaction (disaggregated) exert a positive influence on export performance. One criticism of the study is that by using a disaggregated measure of performance, rather than an overall measure, the possible conflicting strategic goals of firms returned mixed results and partial support. This was outlined earlier where it was posited that firms may pursue mixed strategies such as a high profit strategy which would in turn yield adverse levels of sales volume since it would have to set prices at the highest level possible sacrificing its volume. The study found that satisfaction with past export performance has a positive impact on current export intensity, performance achieved and performance satisfaction. Further, they indicated that past export performance influence on current year export performance is particularly pertinent for firms that operate in countries with emerging markets as these firms have limited slack resources to invest in exploration activities (Lu, Zhou, Bruton & Li, 2010; Morgan et al., 2003; Lisboa et al., 2011; Chen, Sousa & He, 2016; Ramsey et al., 2016; Chung et al., 2019). They need to be entrepreneurial to fully exploit their current capabilities to meet the challenges of international trade whilst at the same time not falling in a success trap. On this basis:

> *H1: A firm's past export performance positively influences current export performance outcomes controlled for size, international experience, type of international markets, degree of internationalisation and number of international markets*

Teece et al., (1997; pp. 521) indicated that a firm's "...current position is often shaped by the path it has travelled." Teece (2007; 2014) hinted at a broader perspective on this evolutionary process, positing that dynamic capabilities arise from learning, from firm resources and from their history. He (Teece, 2007) indicated that a firm's unique capabilities are partly shaped by the internal historical development of a firm. The analytical basis for organisational learning are; a) firms actions depend on history, which means that they are based on interpretations of the past rather than on anticipations of the future. The dynamics of organisational change thus appears as an incremental, adaptive process of experience and knowledge; and b) firms must reach goals and objectives and their behaviours thus depend on the relation between achieved and expected results, which implies an evaluation of processes (Levitt & March, 1996). Each firm develops alongside specified technical and organisational trajectories which determine the scope of their capabilities. Managers work to identify associations between firm-level behaviours that are associated with positive and negative outcomes, repeating those behaviours that drive positive outcomes and eliminating behaviours that result in negative outcomes (Sousa & Bradley, 2008). Each firm holds, at a given time, some specific capabilities, that are linked to its own history, and that condition its evolution and transformation (Weinstein & Azoulay, 1999).

Following on from the previous hypothesis it is also necessary to provide further support for the assertion that past export performance exercises a positive influence on firm capabilities. In the international business literature, no discernible studies were identified making that causal link between the two, so wider evidence from the strategy literature is deployed. Organisational learning theory has shown that success signals positive feedback that ties previous success to that of existing product-market environment (Burgelman, 2002). Indeed, success generates feeling of optimism, enthusiasm and commitment in current areas of advantage (Wang et al., 2015). Lages & Montgomery (2004) specifically found that past export performance positively influences export commitment. In the short-term firms, will not look to make significant structural changes but instead stick to their existing trajectory using exploitative learning to successfully improve capabilities and efficiency (March, 1991). This means that firms respond to the need for action that minimises disruption to existing process, thus enabling a continued focus on incremental efficiency (Leonard-Barton, 1992). He also posited that exploitative process improvement has been documented as being the preferred method for firms when changes to practices are needed due to this approach's ability to return a firm to full efficiency quickly. It must be noted that the positive link between past export

performance and firm capabilities is largely a short to medium-term phenomenon. This is because if this strategy is solely deployed over the long term firms could fall into what is termed a 'success trap' which tends to hinder innovation and depress performance (Wang et al., 2015 & Burgelman, 2002).

Firms' commitment to exporting directly impacts performance because this commitment is associated with the allocation of greater resources to the task, better enabling the organisation to achieve its exporting goals. In general, the more committed the firms, the more successful their performance, as they are more engaged in planning, and therefore allocate greater financial and human resources to the export activity (Sousa et al., 2008; Lages et al., 2004; Bilkey, 1978; Aaby and Slater, 1989; Zou & Stan, 1998; Cavusgil & Zou, 1994). Export commitment is a function of resource availability (Ishmael, 2013; Alegre et at. 2012; Bianchi & Saleh, 2010; Cavusgil & Nevin, 1981). When export operations perform well, management is more likely to support all the exporting activity within the firm. Conversely, the reputations of the exporting operations and export managers are diminished by poor performance and as a result fewer resources will be made available to them (Lages et al., 2008; Chen, Sousa & He, 2016; Ramsey et al., 2016; Chung, 2019). This situation becomes even more evident in small and medium-sized firms that operate under short strategic cycles. Nevertheless, perceptions of past success will lead managers to increase their commitment in a firm's functional capabilities areas. By building more efficient and established manufacturing facilities, operation systems and marketing channels, exporting firms can obtain internationally recognised products which help to create a superior and competitive export position in the host markets (Chen, Sousa & He, 2016; Ramsey et al., 2016; Chung, 2019). In sum, this leads to the following hypotheses:

> *H2: firm's past export performance positively influences firms' technological (H2a), information technology (H2b), marketing (H2c) and market linking (H2d) capabilities controlled for size, international experience, type of international markets, degree of internationalisation and number of international markets*

3.4.2 Firm capabilities as a driver of export performance

Firm capabilities are broadly defined as "complex bundles of skills and accumulated knowledge that enable firms to coordinate activities and make use of their assets" (Day, 1990, pp. 38) to create value and sustain competitive advantage. In other words firm capabilities as noted earlier in the dissertation are a type of firms' intangible resources (e.g. Jones et al., 2018). In the extant literature, firm capabilities are

operationalised in many forms (Day, 1994) but largely as individual functional areas with examples such as relational capabilities (e.g., Lages, Silva, & Styles, 2009), information-based capabilities (e.g., Miocevic, & Crnyak-Karanovic, 2011), IT capabilities (e.g., Zhang, Sarker & Sarker, 2013) and marketing capabilities (e.g., Tan & Sousa, 2013). Whilst it is useful looking at these capabilities in isolation, a number of recent studies have suggested that five capability areas (technology, market linking, marketing, IT and management-related) are particularly relevant for studying sustainable advantage (DeSarbo et al., 2005, 2006 and 2007). In this study, four of the five capabilities are deployed (technology, market linking, marketing and IT) for three reasons: a) in their 2005 paper, management-related capabilities were not identified as a significant driver of performance; b) as previously observed, management-related capabilities has high levels of shared variance with the other capabilities as they are largely driven by management; and c) the model is controlled for international experience. The rest of this section provides support for these four functional capabilities and presents their links to export performance rather than overall firm performance.

3.4.2.1 Technological capabilities

As part of a firm's capabilities, technological capabilities are an important strategic resource that enables firms to develop and design new products and processes and in fact transform knowledge into goods in a unique way. Technological capability includes both practical and theoretical know-how, methods, procedures, experience, physical devices and equipment as well as being concerned with process efficiency, cost reduction, consistency in delivery, and competitiveness (Archibugi & Coco, 2004; Wang, lo, Zhang & Xue, 2006). Effectively these capabilities represent a superior and heterogeneous technical asset area for firms irrespective of their industry. They help firms increase efficiency in their production processes, reduce cost and improve consistency in delivery and by extension improve competitiveness. DeSarbo et al., (2007) indicated that technological capabilities encompass a whole range of activities such as technology development, product development, production and manufacturing process, technological progress forecasting, and logistics which allow a firm to keep its costs down and/or to differentiate its offerings from those of its competitors. Further, firms do not only have to master their technological capabilities, but they also must be able to deploy and expand them to the full extent of the available resources and competences (Walsh & Linton, 2002). Indeed, technological capabilities, represent an important potential source of competitive advantage especially in technologically-competitive markets.

Superior technological capabilities enhance business performance as these capabilities help build competitive advantage. The basis of innovation within firms lies in great part in their technological capabilities (Archibugi, Filippettic, Frenz, 2013; Spender & Grant, 1995). Through the effects of process innovations, as well as by redesigning of products, better technological capabilities help firms achieve efficiency (Tsai, 2004). Certainly, superior technological capabilities can help accelerate the pace at which new products are developed and raise the chances of first mover advantage (Lieberman & Montgomery, 1988). In regard to firms that operate in international markets, Rodenbach & Brettel (2012) found that businesses with international experience were more likely to invest in new technology since they possess greater awareness of foreign markets, foreign business practices, had a wider worldview and more professional ties with foreign technology communities. Harris and Li (2007) found that productivity amongst new exporters increased by a third (34%) in the year of entry to international markets as they benefit from access to new technology. In every sense, technological capabilities are important foundation of business performance as it is key to developing competitive advantage (Tsai, 2004; Hsieh and Tsai 2007; DeSarbo et al., 2007; Wang, et al., 2006). Flor and Oltra (2005) found that technological capabilities have a positive impact on export performance and therefore this study posits that technological capabilities would have a positive influence on the export performance of Caribbean manufacturers.

3.4.2.2 Information technology capabilities

Information technology (IT) capabilities permit the firm to diffuse technical and market information effectively throughout all relevant functional areas. Bharadwaj et al., (2001) defined a business' IT capabilities as its ability to mobilise and deploy its IT based resources in combination with other resources and capabilities. They identified three elements to this capability: IT infrastructure, IT management, and IT-enabled intangibles. The IT infrastructure refers to computer communication technologies, its technical platforms and shared data storage (Bharadwaj, 2000). The management aspect of IT captures the firm's ability to effectively implement project management systems, development practices, evaluations and controls. It also reflects the importance of integrating IT and business strategies (Zhang, et al., 2013) and management's ability to think about how IT contributes to business value and to incorporate IT planning with the firm's business strategies (Bharadwaj et al., 2001). Further IT enables partnerships that help foster relationship between technology providers and users, and linkages between firms and their key business partners. In other words, electronic distribution channels

which facilitate interaction between suppliers and customers, and fosters relevant knowledge creation (Zhang, et al., 2013). IT capability is a multidimensional and complex variable straddling aspects of the technical as well as managerial. In the early literature it was either being a purely managerial capability or technological (Zhang, Sarker, & McCullough, 2008). IT capability is a complex and important area for firms as it is largely responsible for the efficient transfer of information across all areas of business.

Critically, IT capabilities are an important driver of business export performance because they enhance a firm's competitive advantage. IT capabilities can do so through IT systems which assist in new product development projects, integration of production and manufacturing processes and functions, technological and market knowledge creation, and internal and external communication (Sambamurthy, Bharadwaj, & Grover, 2003). IT capability also plays an important role in the internal and external distribution of products and services, providing access to all staff so they may give quick and efficient responses to customers (McKeen & Smith, 2003). Staff can have multiple access points for easy communication with stakeholders, without restriction of location. McKeen et al., (2003) posited that IT capability give staff better access to high quality information, at the place and time and in the format that is required for decision making. In other words, these capabilities improve savings, cost reduction and support workload distribution for increasing demands due to the automation of manual processes. Zhang et al., 2013 indicated that IT capability can lead to higher performance in firms operating in international markets due to: a) the pursuit of high value-added applications of IT to maintain a competitive edge; b) the reduction of costs for communicating with foreign customers/suppliers and for gathering information about foreign competitors; and c) the support/enhancement of distinctive competencies and skills in other business functions. IT capability would be expected to positively influence export performance as it helps to increase efficiency at the technical level, whilst socially it helps to mitigate the impact of dealing with distant markets.

A broad census is emerging in the literature regarding IT capabilities positive influence on export performance. However, no such research, as far as this study is aware, has been undertaken in the Caribbean. Zhang et al., (2013), conducting research on small and medium size enterprises in China, found that IT capabilities had no significant influence on a firm's financial performance. Indeed, Tippins & Sohi (2003) found that IT capabilities became non-significant through the mediating variable organisational learning. The reasons given for these results are very interesting and could apply to

Caribbean manufacturers. It appears that the benefits resulting from innovative application of information technology could be defended only if the system exploits the unique resources of the innovating firm so that competitors do not fully benefit from imitation. Indeed, for lower technology SMEs firms, which are most cases in this study, investing in complex IT capabilities could have an adverse effect on comparative performance. The main reasons being, these firms tend to have scare resources, are relatively small and as such cannot really investing the time and money into formal integrative data architectures (Dhungana, 2003).

The IT architecture in these SME firms are relatively simple, and because they are not indispensable for performance they could lag in terms of upgrades unlike in large organisations, where through the process of institutionalisation, certain architectures may become linked to work practices in parts of the organisation, making it difficult to modify (Zhang et al., 2013). Certainly, it is not beyond the imagination to have circumstances where IT resources that were once valuable to a firm being rendered obsolete and create competitive disadvantage rather than advantage (Bharadwaj, 2000). One other observation is that IT capabilities are dependent to a large part on the telecommunication infrastructure of the country and support skills where they are based (Dhungana, 2003) so inadequacies in those could affect the role IT capabilities play in business export performance.

3.4.2.3 Marketing capabilities

Marketing capabilities are associated with the competitive advantage firms derive from their marketing activities and functions which plays a key role in firm export performance because it largely deals directly with the firm's offer and its customers. Marketing capability is a multi-dimensional concept which represents a business' competences that help at firm reach customers, satisfy customers' needs, and gain revenue from sales (Vorhies & Morgan, 2005). Day (1994) also indicated that marketing capabilities are integrated processes that are designed to apply the collective knowledge, skills and resources to meet the market-related needs of the business. In fact, Lilien, Srinivasan & Sridhar (2011) posited that marketing capabilities are one of the most important business capabilities. Key elements of marketing capabilities are centred on two marketing areas: a) those concerning individual 'marketing mix' processes, such as product development and management, pricing, selling, marketing communications, and channel management (Vorhies & Morgan, 2005); and b) capabilities concerned with the processes of marketing strategy development and execution (Morgan et al., 2004). These

will obviously allow businesses to implement marketing programmes more effectively by taking full advantage of capability areas such as market linking and technology (Eisenhardt & Martin, 2000; DeSarbo, Di Benedetto & Song, 2008). Marketing capabilities should be an important factor in developing competitive advantage because these capabilities are most likely to be rare, valuable, non-substitutable, and inimitable given their broadly tacit nature.

Indeed, marketing capabilities have a positive impact on export performance since it is a key source of competitive advantage. Recently the relationship has been investigated by several scholars in various contexts (Krasnikov & Jayachandran, 2008; Fang & Zou 2009; Morgan, Slotegraaf, & Vorhies, 2009; Vorhies & Mason, 2009; Theodosiou, Kehagias, Katsikea, 2012; Murray, Gao, & Kotabe, 2011). The findings from these studies have supported a positive and significant link between marketing capabilities and export performance. Krasnikov & Jayachandran (2008) indicated that marketing capabilities have a stronger impact on export performance than research and development, and operations capabilities. Certainly, marketing capabilities enable firms to implement their strategies effectively to help reconcile market conditions and specific performance objectives (Morgan, Vorhies, & Mason, 2009). A further benefit of marketing capabilities, which was also mentioned earlier, is that it is unlikely to be easily imitated and/or acquired by the competition due to the distributed, tacit, and private nature of the underlying knowledge. Whilst it is widely accepted that market capabilities have positive effect on export performance, it should be noted also that the strength of that performance can vary under different conditions. For example, Fang and Zou (2009) found that the effects of marketing capabilities on export performance are stronger under high market dynamism than under low conditions. Bearing this in mind, overall the literature supports the view that marketing capabilities are a source of competitive advantage which leads to superior export performance.

3.4.2.4 Market linking capabilities

Market linking capabilities relate to a firm's relationship with market actors, as they look to leverage these relationships to ascertain greater insight into market behaviours. Market linking capabilities allow businesses to better compete by detecting changes to markets, anticipating shifts in the market environment, creating and retaining durable links with customers, and creating strong bonds with channel members, such as wholesalers and retailers (DeSarbo et al., 2007). These are existing capabilities which enable businesses to sense marketplace requirements ahead of competitors and allow

them to connect or deploy their other capabilities to the external environment (Day 1994; Song et al., 2008, Hao & Song, 2016; Bednarek, Burke, Jarzabkowski, & Smets, 2016). Through such relationships, the firm creates a stickiness that reduces the possibility of customer switching, which is usually the result of higher relationship investments made by both sellers and buyers (Johnson & Selnes, 2004). Operationally, market linking capabilities (or an outside-in process) inform and guide business processes, which ensure that all activities share common customer goals and information (Hooley, Fahy, Cox, Beracs, Fonfara, Snoj, 1999). Market linking capabilities should be systematically linked to business strategies which in turn help to determine the most effective and efficient way to relate to customers. Firms which are strongly market driven (i.e., with high market linking capabilities) have the greatest insight to develop their spanning and inside-out capabilities as noted by Day (1994).

Market linking capabilities generates superior export performance because of the advantage that can be derived from close relationship between sellers and buyers. The literature provides widespread support for the positive link between market linking capabilities and export performance (e.g., Johnson and Selnes 2004; Hao & Song 2016; DeSarbo et al., 2007; Song et al., 2008; Chen, Li, & Arnold, 2013; Parnell, 2011). For example, Johnson and Selnes (2004) indicated that a close relationship between the firm and customers can generate superior price premium for the selling firm because of the improvement of customer lifetime value. Scholars have also indicated that market linking capabilities could lead to more effective product distribution activities, decreasing sales costs and increased sales volume (Day, 1994; Johnson and Selnes, 2004). Hao and Song (2016) posited that maintaining good relationships is an effective way of learning about the needs of customers in order to develop appropriate offerings. Song, et al., (2008) introduced an interesting perspective to the link between market linking capabilities and performance more generally, by indicating that this relationship may not always be positive for different strategic types of firms.

So, for example, they concluded that firms which are prospector firms (leaders of change in their industry) have lower market linking capabilities than say analysers (firms that maintain a stable, limited line of products, while moving out quickly on new developments in the industry) and defenders (firms that attempt to locate and maintain a secure niche in a relatively stable product or service area). A hypothesis for reactor firms (those that lack long-term plans and any consistent strategy) was not tested but may indicate that this relationship may not always hold positive or significant especially for

this type of firm which partly characterise firms in developing countries. Also, there are dark side effects to long term relationships where the relationship loses objectivity and opportunism and thus have a negative impact on performance overall (Hsu & Wang, 2012). Therefore, on balance, market linking capabilities should have a significant and positive effect on export performance as it does for overall performance but with some possible exceptions as highlighted above where this assertion may not hold. In sum, this study presents the following hypotheses:

> *H3: Technological (H3a), information technology (H3b), marketing (H3c) and market linking (H3d) capabilities positively influence export performance outcomes controlled for size, international experience, type of international markets, degree of internationalisation and number of international markets*

3.4.3 Mediating role of firm capabilities

Firm capabilities mediate the relationship between past export performance and current year export performance. Past export performance has two ways of influencing current export performance: the direct path which in the short term represents a continuation of the status quo and/ or in the long term a completely new trajectory; and an indirect path through firm capabilities as firms learning in the short term (March, 1991; Snok, Snell, Lee & Snok, 2016). The indirect effect of past export performance on current year export performance through firm capabilities ensures firm offerings and practices are aligned with customer needs in the short term and are relatively better than their competitors to sustain business (Snok, Snell, Lee & Snok, 2016). Past export performance success or indeed failure is a key driver to determining whether customer's needs are being met. The mechanism through which firms could best respond to change is through their capacity to adapt their current capabilities or areas of competitive advantage (e.g., marketing, market linking, technology and technological) (Teece, 2014; Weerawardena et al., 2019). Critically the literature has shown that firms tend to be quite relational and focus on managing all aspects of the buyer-seller interactions (Kohtamaki, Hakala, Partanen, Parida, & Vincent, 2015) and would largely be aware of what is required to maintain or improve capabilities, and thus help sustain performance. Whilst past export performance will have a direct influence on export performance, aspects of that relationship will be mediated by a firms' capabilities.

The mediated relationship between past export performance and current export performance through firm capabilities is largely due to exploitative learning as mentioned earlier, which posits that firms learn from past outcomes. This learning confirms a firms'

areas of advantage compared with their competitor (DeSarbo et al., 2007). The learning reinforces commitment to current process and practices which drives performance (Wang et al., 2015). Firms remaining on the same operating trajectory will identify areas of the firms that merit some adaptation to sustain and even increase efficiency. Organisations find this to be the easiest way of improving efficiency in the short term rather than employing disruption measures such as completely new trajectories or ways of doing business. This therefore creates an indirect or secondary effect of past export performance on current export performance through firm capabilities. In practical terms a firm needs to ensure that its capabilities which lead to competitive advantage are constantly updated and altered through learning from past performances in ways that other competitors are unable to imitate (Hsu & Wang, 2012). A gap in the international business literature persists regarding this mediating role of firm capabilities as posited here. This notwithstanding, firms' capabilities have been used as mediating variable in other studies (e.g., Pinho & Prange, 2016; Jiang & Kortmann, 2014; Zhou, Wu, & Barnes, 2012; Lu, Zhou, Bruton & Li, 2010). If the premises highlighted here are true, then it can be assumed that firm capabilities mediate the relationship between past export performance and current year export performance.

In regard to the nature of the mediation, literature show that firm capabilities tend to act as positive mediator when it comes between firm performance and its antecedents. Using an organisational learning perspective as the basis for establishing the mediating effects of capabilities, a few scholars have conceptualised the following indirect links. Sok et al., (2016), deploying the Baron and Kenny approach of mediation, found that marketing capability positively mediated the relationship between entrepreneurial orientation (EO) and performance. The direct link between EO and performance reduced when marketing capability was included in the model. The reduction was not enough to make the direct link insignificant, but the indirect link was significant indicating that marketing capability partially mediated the relationship between the two. Zhou et al., (2012), using marketing capabilities as a mediating variable, reported that this capability indeed mediates the relation between the timing of international market entry and international growth. Lu et al., (2010), tested firms' adaptive capability as a mediator of institutional capital and managerial ties (both tested independently) and international performance and found that this capability measure also mediates their direct relationship. Hsu and Wang (2012) indicated that a firm's dynamic capabilities partially mediated the relationship between human, relational and structural capital (each tested as a separate

hypothesis) and performance. The evidence reviewed for this study shows that firm capabilities will indeed act as mediators for the purposes outlined here. The hypothesis:

> *H4: Technological (H4a), information technology (H4b), marketing (H4c) and market linking (H4d) capabilities positively mediate the relationship between past export performance and current export performance controlled for size, international experience, type of international markets, degree of internationalisation and number of international markets*

3.4.4 Moderating role of adaptation strategy

This study goes a step further to suggest that whilst past success is helpful in providing the fundamental basis upon which firms achieve superior export performance through their capabilities, these firms must also undertake some adaptation to sustain the influence of these capabilities on performance. As presented earlier, the effects of adaptation on performance is inconclusive in the literature as scholars have returned conflicting effects. Sousa et al., (2014) indicated that there is such a thing as over adaptation meaning that adaptation may support performance at one stage but may become negative when it is overdone. That said there are some benefits from firms adapting their processes and practices for export markets. Adaptation can: a) improve relationships with intermediaries (Navaro et al., 2010); b) achieve higher profitability as the firm's offer and market needs align more closely with customer needs (Leonidou et al., 2002); and c) enable firms to adjust to the characteristics of foreign markets and thus reduces the liability of foreignness (Madsen, 1989). Firm adapt many aspects of their activities to enhance performance as was shown in the last chapter but on the whole firms that identify areas for improvement and adapt them to market conditions tend to yield improvements in their performance (e.g., Zou & Cavusgil, 2002; Navaro et al., 2010; Magnusson et al., 2014; Dow 2006; Sousa & Bradley, 2008). It is reasonable to deduce that adaptation in practice, process and behaviour enable firms to better meet the ongoing needs of foreign customers and would have a positive association with performance in international markets.

In addition, levels of adaptation also play a contingent role in sustaining a firm's competitive advantage because firms need to modify their practices to survive. Note that the definition of capabilities in this study is synonymous to competitive advantage. It looks at areas that firms perform better than their close competitors – this could be manifested in low cost or differentiation advantage. Navaro et al., (2010) posited an interesting point: it is always necessary to gain a competitive advantage by providing

superior value for customers but attaining this advantage is not an end in itself, but rather a means to an end. Firms would therefore need some adaptation to sustain themselves. Firms that participate in international business need to constantly assess their ability to compete through efficient and effective adaptation strategies (Morgan, Kaleka, & Katsikeas, 2004). Management needs to determine the extent to which they adapt practices based on the feedback loop of past performance. However, this does not imply a monotonic positive or negative correlation between adaptation and capabilities, but rather a superior level competitive advantage at some point along the standardisation–adaptation continuum represent (Stoian, 2011; Dow 2006; Solberg 2002; Douglas & Wind, 1987). Navaro et al., (2010) indicated that the use of adaptation to meet the needs of foreign customers leads these firms to introduce differentiated offers compared with their competitors and helps firms sustain competitive advantage. In effect, firm adaptation strategies play a role in determining whether they are successful. If Hypothesis 3 is confirmed, adaptation of firm activities strengthens the effect of firm capabilities on current export performance.

> *H5: The effect of technological (H5a), information technology (H5b), marketing (H5c) and market linking (H5d) capabilities on export performance are moderated by firm's adaptation strategies, such that the effect is stronger when levels of adaptation are high than when they are low controlled for size, international experience, type of international markets, degree of internationalisation and number of international markets*

3.5 Summary of the hypotheses

The proposed hypotheses and relationships between the independent, mediating, moderating and dependent constructs of this study are illustrated in Figures 3. 1 and 3. 2 respectively. The first illustrates the direct and moderating hypothesis, while the second Figure illustrates the indirect hypothesis (mediational model).

Figure 3. 1 The conceptual model – Direct and moderating hypothesis

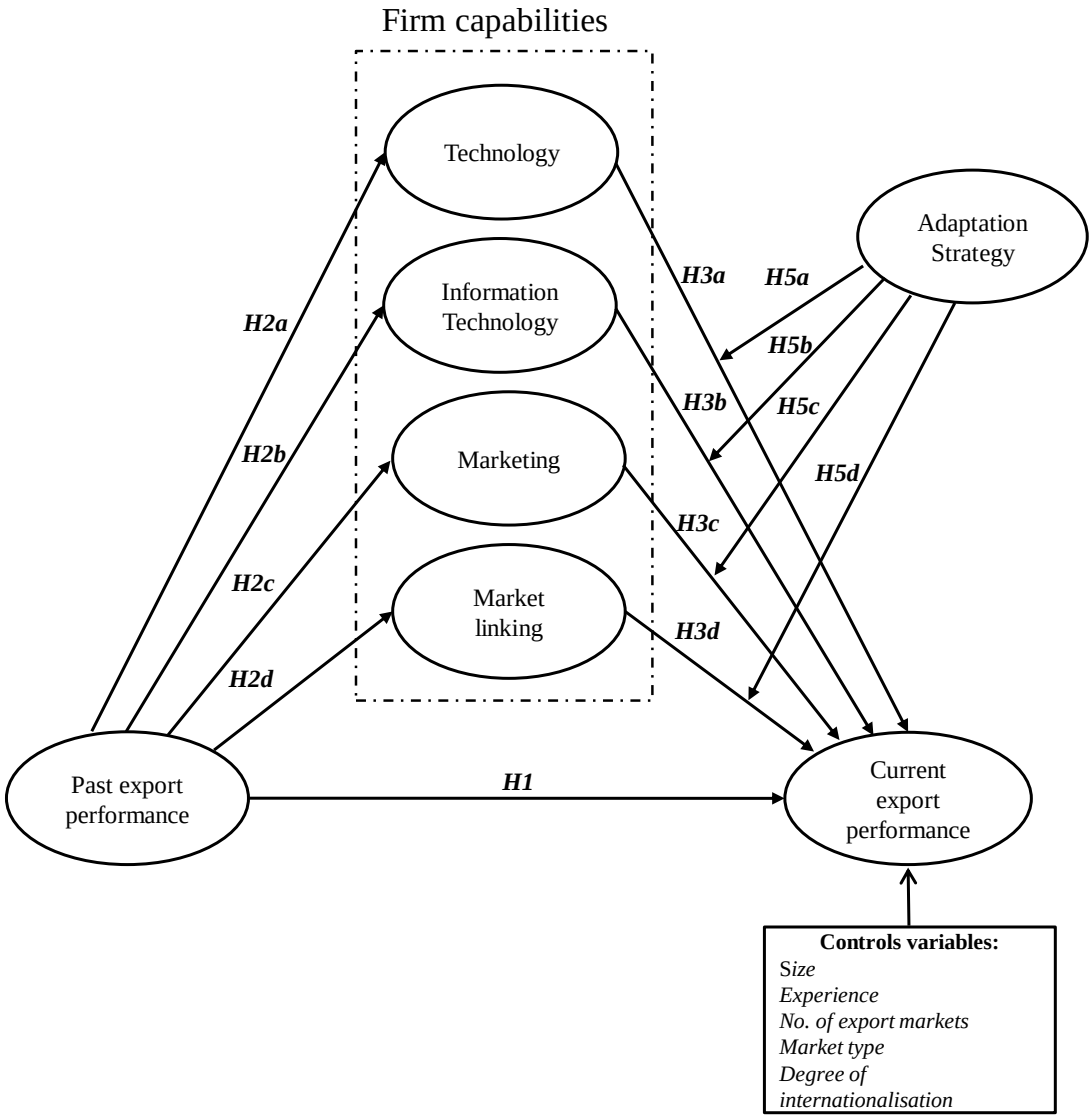


Figure 3. 2 The conceptual model – Indirect and mediating hypothesis

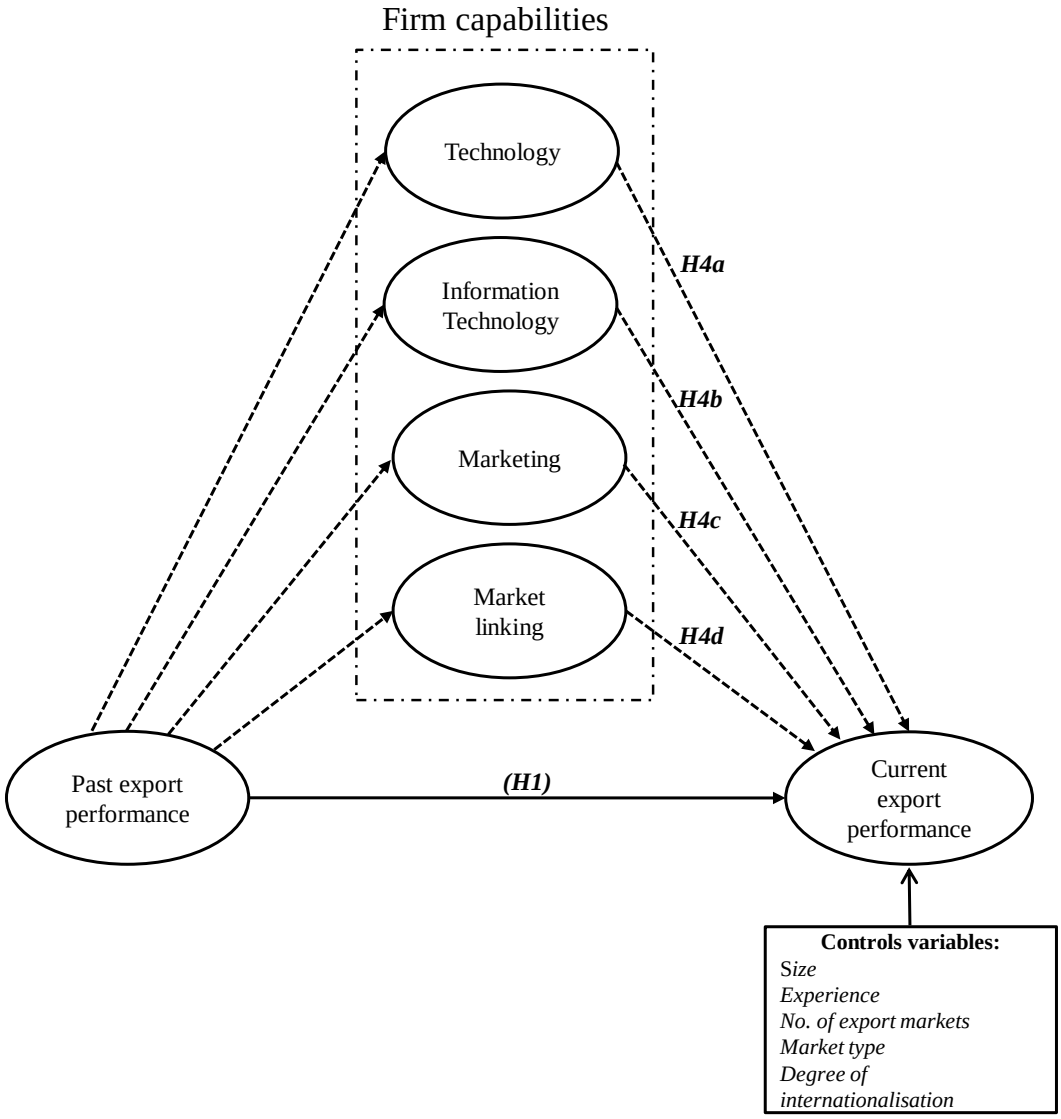


Table 3. 1 The research hypotheses

ID	Description
H1	A firm's past export performance positively influences current export performance outcomes controlled for size, international experience, type of international markets, degree of internationalisation and number of international markets
H2	A firm's past export performance positively influences firms' technological (H2a), information technology (H2b), marketing (H2c) and market linking (H2d) capabilities controlled for size, international experience, type of international markets, degree of internationalisation and number of international markets
H3	Technological (H3a), information technology (H3b), marketing (H3c) and market linking (H3d) capabilities positively influence export performance outcomes controlled for size, international experience, type of international markets, degree of internationalisation and number of international markets
H4	Technological (H4a), information technology (H4b), marketing (H4c) and market linking (H4d) capabilities positively mediate the relationship between past export performance and current export performance controlled for size, international experience, type of international markets, degree of internationalisation and number of international markets
H5	The effect of technological (H5a), information technology (H5b), marketing (H5c) and market linking (H5d) capabilities on export performance are moderated by firm's adaptation strategies, such that the effect is stronger when levels of adaptation are high than when they are low controlled for size, international experience, type of international markets, degree of internationalisation and number of international markets

3.6 Summary

This chapter presented the development of the conceptual framework for this study. It first presented the theoretical background for the study contributing to organisational learning and RBV theories. Organisational learning theory indicated that past export performance is an important source of learning. The implication is that learning from past outcomes is a key source of confidence in the way firms operate and add value, thus encouraging them to continue to invest and pursue their areas of competitive advantage. RBV theory showed that firm capabilities are the main source of competitive advantage and a key driver of superior export performance. The concept of export performance was identified as a complex issue due to the lack of agreement on a definition. It was finally viewed as a multifaceted variable, including financial and non-financial measures. It is mostly studied subjectively – recording respondents' perception of performance rather than objectively – requiring actual business performance figures such as exact profitability numbers. Being multifaceted, export performance is conceptualised as a latent variable which means that the explanatory items are either reflective (the observed indicators of performance being considered or assumed to be effects or manifestations of a performance factor) which is most common with what is found in the research; or formative in nature (the observed indicators being assumed to cause or determine performance). Export performance was mostly conceptualised as static variable rather than a dynamic one (i.e., taking into account multiple years of performance).

More specifically, the chapter presented a model that incorporated past export performance, firm capabilities, adaptation strategy and current export performance. The study posits that past export performance has a positive impact on current year export performance and firm capabilities. Firm capabilities have a positive impact on current export performance, but it also mediates the relationship between past and current export performance. The relationship between firm capabilities and performance was dependent on a firm's adaptation strategy. Together, the relationships in the framework are best explained using a moderated mediation model whose output would suggest or develop the following theory. Firms who register high levels of satisfaction with past export performance would expect to return high levels of current year export performance. In part, this would lead to high path confidence in firm capabilities which management would look to sustain, which would then positively influence existing export performance. However, the effects of firm capabilities on current export performance would be strengthened or weakened based on firms' adaptation strategy.

CHAPTER 4. RESEARCH METHODOLOGY

This chapter outlines the methodological approach that was deployed to accomplish the research aims of this study. It develops the rationale behind the use of a modernist perspective with its objective ontology and epistemology. This positivist approach uses deductive reasoning to develop and test the study hypotheses. Methodologically, an online survey was used for data collection. The questionnaire was developed using an iterative process. In the first instance, the survey instruments were derived from the extant literature with some minor modifications to better meet the aims of the project. The questionnaire was pre tested and piloted with the help of academics, industry professionals, and a sample of respondents. The study was conducted amongst export professionals in the English-speaking Caribbean. As a sample frame of these professionals did not exist, one had to be developed with the assistance of number of agencies in the region. In advance of the fieldwork the methodological approach received ethical approval from the University. The overall number of firms in the English-speaking Caribbean that are exporters was relatively small and as a result they were all approached to take part in the study. In total about a quarter of firms responded. They represented firms with a good mix of international experience. They were mostly SME, containing a maximum of 250 employees (OECD, 2005), and conduct a greater proportion of their business in the Caribbean, Central and South America.

Once the data were collected, cases with over 10% of missing data and zero engagement were deleted using the threshold set out by Hair et al., (2014). Other unignorable missing data, that is, those missing at random were replaced using a multiple imputation technique. Test for non-response bias revealed that this problem did not exist in the dataset. Early and late respondents were compared (using independent *t* test) and no significant difference exited between the characteristics of the group. The Harman's test for common methods bias (CMB) showed that this issue does not exist for the data. A single method factor was also used and that also returned no evidence of CMB. The data were analysed using structural equation modelling (SEM), which has a measurement element (confirmatory factor analysis) and then a testing element (also referred to as SEM). The hypotheses were tested to meet the fulfilment of a moderated mediation framework as well as some *post-hoc* multi-group analysis. As SEM largely involves the use of latent variables in hypothesis testing, the reliability and validity of the items within these latent factors had to meet the minimum requirements for their inclusion.

4.1 Research philosophy

In advance of discussing the methodological approach used in this study, this section looks at several key issues around the research paradigm. In its broadest sense, a research paradigm is a belief system, set of assumptions, or points of view that guide action, which is then shared by a community investigating aspects of that community (Guba, 1990; Kuhn, 1962). A paradigm is an important consideration in the research process as it is the basis for any framework formulation for a given area of research. It takes into account three main perspectives, which are modernism, symbolic-interpretivism and postmodernism (Hatch & Cunliffe, 2006). The modernist perspective speaks to the quantitative measurement of all aspects of business activities, in this case, as the approach looks to explain the drivers of firms export performance.

The symbolic-interpretive perspective speaks to a more qualitative approach to organisational study as it tries to uncover a deeper understanding of the social elements present in organisations. It is not particularly fixated with measurement of concepts as it sees the organisation as being very fluid and a social construct. The postmodernist perspective is interested in conducting a robust critique of the *status quo* in order to uncover any instability in what organisations may claim to be the truth. Each of these perspectives corresponds to a set of philosophical assumptions, which are ontology, epistemology and methodology (Hatch & Cunliffe, 2006). The ontological speaks to the question of what is the nature of reality whilst the epistemological addresses concerns around knowing how we can know and the methodological around how we go about finding out.

More specifically and in the case of this study, the modernist perspective proposes that the concepts influencing export performance are universal and only needs measuring. The epistemological position is that drivers of export performance exist irrespective of business awareness of them. It is for researchers to develop scientific methodologies to unearth these drivers/concepts impacting export performance. The ontology therefore requires objectivity and a logical approach to knowledge creation. Because the antecedents to export performance are universal, export performance patterns can in turn be predicted and managers therefore plan for success. Cooper and Burrell (1988) described the modernist perspective as being calculative and utilitarian in its intent and reassuring in its substance. Hatch and Cunliffe (2006) characterised the modernist approach as being unreflexive about its values for order, rationality, structure, progress and efficiency. They also posited that the modernist approach is centred on the view that

the researcher can see, feel, taste, hear and/or smell their data. The perspective was deployed to help explain export performance amongst Caribbean manufacturers, its antecedents and the relationship between them. The approach was best placed to meet the project objective of helping theory development and prediction of export performance.

Noteworthy, the modernist perspective is not able to provide a holistic view of firms because the non-generalisable aspects of firm activities are broadly viewed as exceptions and/or are ignored. Whilst this approach looks to measure and categorise what happens in firms, this cannot always be accomplished and therefore the analysis emanating from this approach will only be partial (Hair et al., 2014). In an ever-changing world where firms change quickly, the restrictive and prescriptive nature of the modernist approach can become a hindrance to the creation of knowledge. The modernist tendency is to make objects of enquiry more real, mistaking research abstractions for reality and producing biased and sometimes simplistic representations (Lewis & Kelemen, 2002). As firm environments become more complex, the modernist attempt to make generalised or sweeping statements about organisational phenomena would become more illogical and diffuse. This is probably evident in the study of export performance, where between the years 1998 and 2005, modernist researchers developed 44 antecedents to export performance (Sousa, Martínez-López, & Coelho, 2008) and more are still being developed as demonstrated in the literature review of the earlier chapters. Within the constraints of this approach, this study will not attempt to create more antecedents, but look to make a contribution to the development of an overarching explanation of export performance.

The propositions of this study were deduced from the theory and were tested using a quantitative research strategy. The main reasons for adopting such an approach lay in the measurement requirements, bespoke nature of the questionnaire, and the flexibility that were required for data collection. Furthermore, this method allowed the collection of up to date views on business activities and performance rather than using historical data from other secondary sources. The research design is cross-sectional, where the data for both the antecedents and dependent variable were gathered at the same time (Weisberg, 2005). This has a number of advantages such as: allowing for a more comprehensive piece of analysis between the two sets of variables; being the quickest and cheapest way to gather data rigorously, with neutrality and objectivity; using standardised instrument containing pretested items; being easy to quantify and summarise particularly in the case of web based surveys (Bickman & Rog, 2009). However, the design presents some risks

such as non-responses, biases or invalid answers. These can manifest themselves in a form of heteroscedasticity (defined later in the analysis section) which is common in cross-sectional studies[6] (Bowen & Wiersema, 1999). It was noted in the literature that the broad assumption across most export performance studies was to ignore between-firm variations as no heteroscedastic tests were being reported (Sousa et al., 2008). This lies contrary to the intellectual basis of resource-based view theory, which states that firms are heterogeneous. A cross-sectional design has its advantages but also have some disadvantages. The necessary steps have been taken in this study to mitigate their adverse impact.

4.2 Study Setting

The target population for this study is export manufacturers operating in the English-speaking Caribbean. The English-speaking Caribbean mainly comprises countries belonging to the Caribbean Community or CARICOM, which are Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, and Trinidad and Tobago. The English-speaking Caribbean were selected for this study for a number of reasons: 1) Sousa et al., (2008) noticed that there was a rise in the number of export-related studies especially outside of the USA but part of Asia, South and Central America, the Caribbean and Africa have received little attention in this respect. The inclusion of the English speaking Caribbean enables scholars to determine whether current knowledge can be generalised to these countries; 2) the English-speaking Caribbean has small domestic markets, so for firms in the region to grow past a certain point they would need to internationalise. Indeed the total merchandise trade export value for these countries is USD $22.7 billion (Table 4.1). 3) the study is positing a sustainability model of export performance that involves aspects of organisational learning and RBV theories and testing such a model in a region that on first sight has very little areas of advantage would make a strong case for the generalisation of the model; 4) the proximity of the Caribbean to a mixture of developed markets (e.g., North America and the UK for historical reasons) and emerging markets (South and Central America); and 5) the inclusion of non-English speaking countries would have made translation and other operational costs prohibitive.

[6] A type of observational study which uses data collected from a population, or a representative subset, at a specific point in time.

Table 4. 1 Merchandise Trade Export Value for English-speaking CARICOM Countries

English-speaking CARICOM countries	Merchandise Trade Export Value (USD thousand) (2014)[a]	Gross Domestic Product (USD billion)
Antigua	$25,247	$1.269
Bahamas, The	$689,194	$8.511
Barbados	$480,753	$4.348
Belize	$423,802	$1.624
Dominica	$75,668	$0.538
Grenada	$30,556	$0.882
Guyana	$1,147,492	$3.228
Jamaica	$1,451,988	$14.360
St. Kitts	$105,962	$0.833
St. Lucia	$203,904	$1.365
St. Vincent	$71,609	$0.729
Trinidad & Tobago	$18,044,103	$24.430
Total	**$22,750,278**	**$62.117**

[a] *Caribbean Export Outlook 2016 – 2017*

In 1989, governments in the Caribbean region established the CARICOM Single Market and the Economy (CSME) to help facilitate trade in the region and internationally. The CSME has emerged as the agreed mechanism of the Caribbean brand of regionalism, which looks to facilitate the requisite environment for competitive production, economic development and investment (ECLAC, 2014). CSME is a way of enabling the deeper integration of Caribbean countries, while individual economies seek to navigate their insertion into wider multilateral trading systems (Hausmann & Klinger, 2009). Indeed, CSME provides a framework for strengthening integration and cooperation amongst CARICOM economies, and a platform from which individual Member States can integrate into the global economy. In other words the signal market creates a space in which goods, skills, capital and commercial enterprises move in a relatively unrestricted manner and provides an extension of the domestic markets of individual Member States; effectively offering an internal market of 19 million people (ECLAC, 2012; ECLAC, 2014). This was guided by the recognition that the individual country market was relatively small and the region's commerce was being dominated by extra-regional sources and markets, an interconnection of bilateral free trade agreements and preferential arrangements (Khadan & Hosein 2013; ECLAC, 2014; ECLAC, 2012). Consequently, the vast majority of exports are given duty-free access into the markets of the Caribbean's major trading partners, as well as strategic European and Western Hemispheric countries.

4.3 Research Design

The quality of data from a survey depends on several factors such as the size and representativeness of the sample, the data collection technique, and the extent to which the questions are sound items of measurement. Researchers indicated that scholars should have a total survey error approach to research design, meaning that the impact of all sources of error should be mitigated as much as possible (Weisberg, 2005). The quality of data from a survey is not better than the worst aspects of the methodology (Fowler & Cosenza, 2012). Of the several sources of error, one of the major sources is the design of the survey instruments (Fowler & Mangione, 1990; Sudman & Bradburn, 1974). Paying special attention to the questionnaire design phase of a study is the most cost-effective way of obtaining high quality data. This section of the chapter looks at various components of error and highlights some techniques to help mitigate their adverse impact on this study.

4.3.1 Instrument design

The survey questionnaire was developed using a rigorous process based on input from Bryman (2012) and Saunders et al., (2012) for structural guidance with a view to reduce any questionnaire-based errors, and the extant literature for the development of the constructs and measurements. The procedures used are reported here whilst the individual construct and measurement elements are discussed more elaborately later. This involves the process of putting together the content of the questionnaire (e.g., wording and type of questions), the sequence of the questions and even the physical form (see Appendix 2). This was a critical phase in the study as it determined the relevance of questions; as well as the ease of understanding, consistency and the length of the final questionnaire.

The conceptual framework contains four main areas which are firm capabilities, adaptation strategy, past export performance and current export performance. The questions used to ascertain the information necessary for measurement were obtained from existing constructs in the literature. Care was taken in the adoption and adaptation of existing scales to ensure that the final questions were precise, purposeful and complete (Bryman, 2012). The constructs used to measure these elements of the model are presented in Table 4.2 alongside their sources. The constituency of these measures are presented later in the study, but in the form of an overview, firm capabilities comprised of four capabilities factors each containing several constituent variables - market linking (5 items), technology (6 items), marketing (6 items), and information technology (6

items). Adaptation strategy was a single latent factor containing nine items which incorporated marketing mix measures, technology, market linking and ICT activities. Past export performance and current export performance contained the same five items. The studies from which the constructs were derived were robust and written by scholars of much reputation in international business research. In addition, following the guidelines mentioned above ensured that each question measured some aspect of the research questions and the wordings were clear enough for all respondents to understand them in a consistent way which, on the whole, reduce any study error.

Table 4. 2 Construct and measurement scales

Element of the conceptual model	**Constructs**	**Source of measurement scale**
Firm capabilities	Technology, Market linking, Technological, Information technology	DeSarbo, Di Benedetto, Song & Sinha, 2004; DeSarbo, Di Benedetto, Jeddi & Song, 2006; DeSarbo, Di Benedetto, Song 2007
Adaptation strategy	Adaptation strategy	Magnusson, et al., 2008; Lages, Jap & Griffiths, 2008; & Rodriguez, et al., 2008.
Past export performance	Past export performance	Lages & Montgomery, 2001; Lages, Jap & Griffiths, 2008
Current export performance	Current export performance	Zou Taylor & Osland, 1998; Lages & Lages, 2004

The questions used in this survey were mainly closed and multiple choice because they more closely met the objective of the study. The questions were previously validated which meant that they would have been the least error prone form of data collection. The use of closed questions is the most commonly used form of obtaining answers from respondents (Fowler & Cosenza, 1998) and it is also viewed as the most appropriate for self-completion surveys (Bryman, 2012). Closed questions ensure the ease of processing answers; enhance the comparability of answers; clarify the meaning of questions; and reduce variability in recording responses (Saunders et al., 2012; Bryman, 2012).

In regard to the scaled element of the questions, a seven-point Likert scale was used for the key question and the task for respondents was only to note a variation of the strength and direction of their attitudes and behaviours on a continuum. A five- or seven-point scale is widely accepted as the optimum length for scale ratings as they lead to more reliable and valid scales than those with fewer or even more points (Krosnick & Fabrigar, 1997). Additionally, the use of negative numbers within scales (e.g., -3 to 3) tend to yield

results that are different from positive ones so for example Weisberg (2005) indicated that evidence in a German study showed that people were less likely to choose responses with negative values. As a result, fewer respondents tended to provide responses of −3 to −1 on a −3 to +3 scale than of 1 to 3 on a 1 to 7 scale, even if the two should be equivalent.

Likert scales are commonly treated as an interval scale and are widely used in factor or structural equation modelling. It is worth noting a few additional points regarding the deployment of a seven-point Likert scale such as its use in factor analysis, it being an order, its effects on reliability and validity, and semantic differential scales. The seven-point Likert scale is optimum way to perform successful factor analyse as scales with larger amount of points tend not to improve reliability and validity (Malhotra & Birks, 2006; Dawes, 2008). The use of a seven-point scale also provides respondents with a neutral option when responding to questions that is, the middle number (Hair et al., 2014). It is quite possible that a respondent can be ambivalent about a question item(s) and that option is available them. Furthermore, the scale can also be called a semantic differential which means that respondents are asked to rate items on a 1 to 7 scale, where the end-points are polar opposites (Weisberg, 2005). The Likert scale used in this study only provided a description for the two extreme end points (e.g., 1 is much less satisfied or 7 much more satisfied) and the steps from one number to the next are treated as equal. This approach, where only the end points are labelled, return a more precise variance of responses (Czaja & Blair, 2005). The points considered here also play a role in ensuring that questions were given the right format which in turn increased their overall reliability and validity.

The wording of questions was another area of inevitable measurement error as question wording can never be perfect. Respondents will inevitably interpret questions differently as they have varying perspectives. Hence, even though every effort was made to word questions as well as possible, bearing in mind that perfection was not attainable (Weisberg, 2005). In line with best practice carried out in leading research design, great care was taken in this study to avoid the general pitfalls of question wording. Two main activities were taken: a) ensuring questions were unambiguous, free of jargon, absent of long terms, leading or too general; and b) utilising where possible existing scales (Bickman & Rog 1998; Bryman 2012, & Weisberg, 2005).

Throughout the survey, efforts were made to use simple words free of theoretical jargons, and these were assessed in the pre-test and pilot phases. Further, this study considered the ethical constitution of the questions to ensure that appropriate questions

were asked (i.e., questions that were not too sensitive). The ethical approval process is discussed later in this chapter, but it was important that consideration was given to the sensitivity of the question wording. It is also important to note that slight modification to existing questions were carried out, which is usually expected to better meet the needs of respondents. This however does not necessarily increase measurement error, since answers to questions often do not vary with minor changes in question wording (Weisberg, 2005). This was a point of reassurance as some slight changes were made to existing question wordings to more closely align them to the study objectives.

In the literature, the order of questions in a survey is believed to affect results and measurement error which was also considered when the survey was developed. Weisberg (2005) indicated that question order effects cannot be eliminated since it is not possible to have every question come first in a survey. Two question effects were front of mind while developing the question (Weisgberg, 2005). First was the rapport effect, which deals with the sensitivity of questions. Every effort was made to include any sensitive questions towards the middle of the questionnaire and demographic ones to the very end. This was to enable respondents to develop some trust in the survey before these questions were asked and thus increase the chances of getting a response. Second, a fatigue effect which occurs when respondents become tired of answering questions as they go through the survey. This normally happens when questionnaires are particularly long. With these in mind, all questions crucial for the study objectives were located early in the survey. As respondents would go through the questions it is possible that they may become less critical of the questions whilst providing more positive answers as they want the survey to end or indeed provide more missing responses (Bryman, 2012; Weisberg, 2005). Lavrakas (1998) indicated that mail and web surveys suffer less from the fatigue effect as respondents can often complete the surveys at their convenience nevertheless this effect was a point of consideration for this study.

In a self-completion survey, as is the case here, the layout of the questionnaire was an area of important concern. Formatting can affect the decision of individuals to participate in the survey, missing data on certain questions, and even the quality of answers to questions (Weisberg, 2005). Bearing in mind the limited budget available for this study, the front page of the survey was designed to look professional, with a logo of the university as well as the logo for a well-known market research agency in the Caribbean. The survey included an introductory statement that explained the purpose of the study. It also included a section on confidentiality and provided contact details for

individuals that would have wanted to discuss any aspect of the survey. The first question was a screening question to ensure that respondents were representing firms that participated in export markets. All answer options to matrix questions appeared at the same time on screen without the need for respondents to scroll down. The questions also appeared one at a time. There is some discussion in the literature as to whether questions should appear one at a time or all at the same time with respondents scrolling from the top to the bottom. Couper, Traugott, & Lamias (2001) indicated that this approach is faster for respondents than the screen-by-screen and that it is easier for respondents to go back up to see or change previous responses. The all on one screen approach was not adopted here and concurred with Weisberg (2005) that the screen-by-screen approach enables better management of the administration of question in respect to skip patterns.

The questionnaire included matrices or batteries of questions which increased the possibility of respondents not paying attention to possible changes in the list of items and giving the same answer to all options (Bryman, 2012; Weisberg, 2005). For example, on an agreement scale, respondents could have agreed with the first option and then quickly agreed with all the following options. To limit the effects of this, the study deployed a few techniques; first ensuring that the questionnaire was not too long, to avoid causing the fatigue effect mentioned earlier; but second deploying a limited use of reverse coding. For example, the level of adaptation carried by firms was a reverse-coded question, where 1 represented ‘extensive adaptation’ and 7 represented ‘no adaptation’. That way a person providing a very positive response to all questions may be located in the middle index rather than at an extreme. Bryman (2012) indicated that the response set problem was more likely in online surveys than telephone surveys. The literature is not settled on this matter. Buckingham & Saunders (2004) indicated that negatively-worded questions could sometimes confuse respondents who then do not answer in line with their overall attitude. Taking all this into account, this survey included very limited reverse coding and where it was carried out, it was not done within question sets but across questions with very clear instructions. Only the very inattentive would not have spotted the change.

4.3.2 Pre-test and Pilot

In advance of taking the questionnaire to the field, it was pre-tested among export professionals and lecturers with expertise in international business studies. This was to ascertain their comments on the length, relevance of the content, question wording, instructions and question sequence. The conduct of pre-tests is a practice viewed as best practice in the research methods literature as it deploys experts in the field to detect any

obvious problems with the content and design of the survey (e.g., Bryman, 2012; Diamantopoulos, Reynolds, & Schlegelmilch, 1994). At the end, four lecturers from three separate universities and three export professionals evaluated the questionnaire and provided written and verbal feedback. Their comments were limited as the questions were adopted from current literature. This allowed the use of questions that had already been piloted where reliability and validity tests had already taken place (Bryman, 2012). The results of the pre-test provided comments on the wording and language issues of the questions and instructions, as well as the question and section re-ordering, and the Likert scales used. Regarding the outcome of the pre-test, it was noted for example that the reverse ordering of Likert scales with the view of reducing response set problems should only be used very sparingly. As a result, only one question included reverse ordering of the Likert scale compared to three from the onset. All comments were carefully considered, and a final draft of the questionnaire was put together in preparation for the pilot phase.

Before arriving at a final draft of the questionnaire, it was piloted with the main aim of detecting any problems that could have arisen for the individuals that would be taking part in the survey. Specifically, the pilot had to evaluate from a respondent's perspective question wording or sequencing, the length of the questionnaire, the ease of completion, contextual relevance as well as the range of responses (Saunders et al., 2007). Since the questions had already been piloted in previous studies, the pilot did not pay too much attention to internal consistency, means, variance, correlations and factor structure issues (Netemeyer et al., 2003). This obviously influenced the decision on the number of firms that were contacted for the pilot as the process was largely descriptive. Tull and Hawkings (1987) indicated that sample sizes for pilot surveys can vary from half a dozen to a hundred or above, so in the case of this study the sample size was on the low end. The administration of the questionnaire, the processes and the conditions were all the same as would have been expected in the deployment of the final survey (Czaja and Blair, 2005). As a result, participants were contacted online and given the questionnaire in the SurveyMonkey (www.surveymonkey.com) format as would have been expected for the final questionnaire. They were also sent a feedback form which they needed to add any comments (see Appendix 3). In total 21 firms were targeted via email. The purpose of the survey was outlined in the e-mail and prospective respondents were given the option to follow an embedded link to access a self-administered questionnaire. Follow-up reminders were later made to encourage participation and probe for further feedback. The pilot received a low response rate (n = 4).

As a result of the pilot, one alteration was made to the questionnaire. It was suggested that an item should have been included in the market linking section of the questionnaire which requested that respondents provided information on their relationship with government organisations in their quest to greater access to international markets. This was the final stage of the iterative approach used in developing the questionnaire and it was then finalised and prepared for data collection. It was noted during the pilot that a purely email reminder approach was not the best way of maximising response rate. Respondents needed to be prompted using a combination of email and telephone calls. Once respondents were sent the initial survey, the use of email reminders on their own did not elicit a strong enough prompt to participate. It was observed that when respondents were reminded over the telephone, they were more engaged and that increased the number of people opening the questionnaire which was verifiable using the MailChimp application (www.mailchimp.com[7]). As a result of this observation from the pilot it was agreed that after the initial mail out of the survey, participants would first be sent email reminders but then a combination of telephone and email reminders would be deployed towards the end of the survey to help maximise the response rate.

4.3.3 Administration

The data collection procedure was a self-completion online survey across manufacturers in the English-speaking Caribbean with the assistance of a respected local Market Research Agency[8]. Respondents were invited to visit a website where the questionnaire was located (Weisberg, 2005; Bryman, 2012). In arriving at the decision to use an online survey, aspects such as response rates, speed of response, data quality and comparability of resulting data variations were key considerations. The literature indicates that there are significant variations in terms of costs, speed of response and comparability of results by demographic groups (McDonald & Adam, 2003). However, there are no significant comparative differences between the quality of data and the ability to generalise between online surveys and other forms of data collection (Deutskens et al., 2006). With regard to the significant variation in the effectiveness of data collection methods between demographic groups, some results have found that online surveys are more effective among graduates, professionals and young people (Weisberg, 2005). This

[7] Mailchimp is an American marketing automation platform and an email marketing service.
[8] Their assistance was limited to: inserting the finalised questionnaire and covering letter on their Survey Monkey account, distributing to the sample frame and following up with reminders. They were visited daily and all actions had to be signed off by the author. They also assembled the sample frame but the author had to contact all the trade associations to get a list of their members.

survey was conducted amongst business professionals, thus reducing any source of group bias. The survey was designed in the SurveyMonkey application. The programme created a web address to which respondents were directed in order to complete the survey. Each respondent was assigned an identification number and their responses were logged into a database. The database could then be retrieved in several formats (e.g., Excel, SPSS) during and at the end of the data collection phase.

An online survey was selected above others for several reasons. The advantages of using an online survey were taken from Weisberg (2005), Bryman (2012), and Saunders et al., (2007) as well as some of the disadvantages which will be outlined later. First, given the limited budget available for data collection, an online survey was used due to its low administration, data entry and coding costs compared with other forms of self-completion surveys (e.g., postal). Second, with its unrestricted geographical scope, there were no limits on coverage compared with, say, and postal surveys in regions the English-speaking Caribbean where postal services are not well developed. Third, online surveys reduce the likelihood of errors in data processing, as data are entered directly into the programme. Fourth, online surveys are completed with fewer unanswered questions than postal surveys thus resulting in less missing data. Fifth, data can be collected quicker than say postal surveys – indeed the data are almost immediately available and completion rates can be closely tracked. Lastly as this is an asynchronous survey, where respondents are not online at the same time as the interviewer and have the freedom to answer the question whenever they chose, the researcher loses some control over the process, but the added anonymity of the process help increase the reliability of responses.

Online surveys have a number of disadvantages, such as being restricted to only online populations, and confidentiality and anonymity concerns. The biggest challenge is the high and highly variable non-response rate. Though the study response rate will be reported later, Cook, Heath & Thompson (2000) indicated the mean response rate for online surveys was 32% and a standard deviation of 19%. On average, online survey response rates are 11% lower than mail and phone surveys, and rates as low as 2% have been reported (Monroe & Adam, 2012). The pilot survey, as will be discussed later, corroborated these findings with a very low response rate. Key factors affecting response rates are usually poor survey design, excessive survey length, lack of interest by respondents (Dillman, Smyth, & Christian, 2009) or lack of internet coverage (Couper, 2000). Efforts were made to mitigate the impact of these issues but as indicated earlier no questionnaire is perfect and individual respondents could also have concerns in relation

to these points. In regard to access to the internet, that was not a concern for this study as the target population was business professionals with all having access to the internet. Regarding the confidentiality and anonymity issue, online surveys may have a greater challenge in convincing respondents that their responses actually enjoy these protections (Bryman, 2005) and could have an adverse impact on response rate. Lastly, as online surveys are first administered through email, there is always a chance that these emails would be blocked by filter programmes. In order to monitor this, the MailChimp application was used to assess whether emails were being blocked, open, read, etc. Email blocking was not an issue for this study because it was noted that professionals working in international trade would leave their email accounts open to unsolicited emails.

4.4 Sample Design

4.4.1 Sample frame

Across the study area no established sample frame existed of export manufacturers and as such this had to be developed before any sampling process could have occurred. A sample frame can be defined as the overall target population of export manufacturers from which a sample or all can be contacted (Saunders et al., 2007). A key consideration in developing the sample frame for the study was determining whether it was complete, accurate and up-to-date (Weisberg, 2005). In terms of its completeness, this would mean that all members of the targeted population were included in the sample frame. Items in the frame represented the targeted population while ensuring that there were no duplicates. Ideally the sample frame would have included up to date information. Whilst these are never attainable in reality and certainly not for an online survey, all attempts were made to achieve them (Weisberg, 2005). In practice the sample frame was developed using information obtained through desk research and from a few business support organisations, including, but not limited to, local chambers of commerce, exporters' associations and manufacturers associations. These organisations shared their database of members with the study. In total the sample frame was established as 1,149 export manufacturers from across the English-speaking Caribbean.

4.4.2 Sampling approach

As indicated earlier, this study deployed a deductive approach to research thus using primary data to test and develop new theories. It is important therefore that the way the data were collected was robust, and key to this was the sampling technique that was deployed. The appropriate sampling technique would have helped secure both the internal and external validity of the results. The internal validity ensured that the relationships

between the antecedents and dependent variables were robustly measured and that the external validity, or the generalisability of the findings, was possible (Saunders et al., 2012*)*. Probability sampling was indicated as the most suited to meet the aims of this project as it was the approach that would allow for the generalisability of the results and the robust testing of theories. Probability or representative sampling critically ensured that each export manufacturer had a known and equal chance of participating in the study (Saunders et al., 2012). Probability sampling largely requires six steps which are: (1) definition of the target population; (2) identification of the sampling frame; (3) selection of a sampling procedure; (4) determination of the sample size; (5) selection of the sampling cases; and (6) collection of data from the designated cases (Jaeger et al., 2009). This sampling technique is associated with survey research strategies for the purpose of large-scale primary data collection and it makes sure that findings are widely accepted and representative.

However, the global population of export manufacturers in the English Caribbean is relatively small with just over a thousand cases, as was discovered for this study[9]. These countries are very small with the largest being Jamaica and Trinidad and Tobago with populations of around 3 and 1 million inhabitants respectively (Central Intelligence Agency, 2018). The islands are also dispersed over a large area in the Caribbean Sea, but by using an online survey this challenge was nullified as firms were easy to contact. As a result of the small sample frame, the possibility of a low response rate, given the results from the pilot survey and data collection technique, a census, or all export manufacturers were approached to take part in the survey. Unlike a sample, which comprises of a selection of some units of the population, a census relates to all units (Bryman, 2012). The use of a census withdrew the need for a sampling process and made a selection process unnecessary and data collection potentially less costly as the sample frame was not partitioned in any way (Saunders et al., 2012). This obviously meant that the external validity or generalisability of the results was settled not only because each case or firm had an equal chance to participate in the survey, but all firms were represented. As indicated earlier no single sample frame is entirely complete but it is accepted that most firms were included in the sample frame, with their information accurate and current.

[9] No consolidated database of export manufacturers existed for the English-speaking Caribbean before the sample frame of this study was put together.

In order to achieve robust and representative results from this study the sample size will have had to have been in the hundreds of cases. A sample size is the proportion of the overall population that has participated in the study (Saunders et al., 2012) and it is extracted from the sample frame using a sampling technique, but in this case a census was conducted. The review of the literature for this study show that export performance related studies yield a varying number of returns with a range from 88 to 2,657. The median sample size was 206 cases and the average of 325 cases. As this study deployed structural equation modelling, it was necessary to consider a minimum sample size that would help yield rigorous results.

A sample size of 100 – 150 is considered a minimum sample size when using maximum likelihood estimation (Hair et al., 2014). A minimum sample size should also depend on the statistical power that one was looking to achieve and the number of degrees of freedom (MacCallum et al., 1996. The widely accepted statistical power threshold is 0.8 and the degree of freedom for this research is near 1,000. However, the rule of thumb is a participant to item ratio of 5:1 and this served as the basis to determine the required amount of responses (Nunnally & Bernstein, 1967). The total survey measures were 44 items, excluding demographics and other non-construct items, therefore a minimum sample size of 220 questionnaires was required. By the closing date of the survey in May 2016, 296 responses had been received. Twenty-one questionnaires were immediately dropped because they had over 10% of missing data and two failed because they had no engagement with the informant returning a standard deviation of zero for their responses (Hair et al., 1998). Thus, an effective response rate of 24 per cent (274 out of 1,149) was achieved.

4.5 Sample treatment and characteristics

4.5.1 Missing data process

One of the main challenges of conducting data analysis is dealing with non-ignorable missing data because failing to deal with these missing data can have practical and substantive effects on the analysis. The missing data process is defined as any systematic event external to the respondents (e.g., data entry errors) or action on the part of respondents (e.g., refusal to answer questions) that leads to missing data (Hair et al., 1998). In terms of the practical impact of missing data, it tends to reduce the sample size available for analysis. This was partly dealt with above where cases with a large number of missing data (more than 10%) were removed but, within variable missing data still had to be dealt with. Noteworthy, missing data could have a substantive impact on results, as

these could be based on data that are not missing at random, a key statistical concern, which could potentially yield biased results.

It is therefore crucial to identify whether there are any patterns in the missing data and in doing so determine if the missing data were scattered randomly throughout the observations or distinct patterns were identifiable. The underlying question is whether data is missing completely at random (MCAR), missing at random (MAR) or not missing at random (NMAR)? The aim of determining whether the data were missing systematically or not is to decide on the most appropriate data imputation method to be deployed. Where the data are diagnosed to be missing completely at random, mean substitution, regression or model based approaches can be used for missing data imputation but where the data are diagnosed to be MAR (or non-random) then a model based approach (e.g., Estimation-Maximisation (EM) or Multiple Imputation (MI)) has to be used (Hair et al., 2014).

Using SPSS, univariate statistics and variances t-test the patterns of missing data were computed to determine the randomness of the missing data (Tabachnik & Fidell, 2012). In the first instance and following the deletion of the 21 cases with higher than acceptable levels of missing data, a Little's test was carried out to assess the type of missing data. The SPSS Missing Value Analysis function returned a p-vale of 0. This *p*-value, which is derived using an EM approach, indicated that the missing data are not MCAR (NMCAR); in other words, there was apparently a pattern in the missing data. This meant that the missing data were either now MAR or non-random. Looking more closely at the missing data, pattern analysis using Multiple Imputation in SPSS provided a greater scrutiny of the missing data within the dataset. It revealed that all variables had at least one missing value; 114 of 274 cases had some missing values; and 203 of all values were missing which represents only 1.4% of all values but overall 74% of the sample. Whilst the latter looks small it could be the source of some bias and needed to be assessed further. The results (in the form of a missing value diagram) provided a visual representation of the variables to determine whether there were any visible patterns. This revealed no apparent or systematic pattern in the missing data. This therefore meant that whilst there is NMCAR as p=0, looking at the multiple imputation (MI) pattern showed that the missing data were MAR rather than non-random. This conclusion was further supported as over 80% of cases fell in the non-missing pattern and the other patterns were roughly equal or consistent.

Data imputation was required for this study because the missing data were MAR and the most appropriate imputation strategy was multiple imputation (MI). The MI strategy unlike other forms of single value imputation involved imputing several missing values for the missing data and in the case for this study the procedure undertook five iterations (Weisberg, 2005). MI was chosen instead of EM, another model-based imputation strategy, because the latter produces data sets that could be biased (Weisberg, 2005). They could be biased because error is not added to the imputed data set and therefore analysis based on these data sets may have inappropriate standard errors for testing hypotheses (Graham, Cumsille, & Elek- Fisk, 2003). In other words, an MI strategy permits assessment of the uncertainty due to imputation. For example, if the variable with the missing data is to be used in a regression analysis, an analysis would be run for each version of the data set, and the variance of the regression coefficients can be examined. According to Weisberg (2005), the MI produces estimates that are consistent, asymptotically efficient, and asymptotically normal when the data are MAR. Carrying out multiple random imputations and using the variability across imputations to adjust the standard error serves as a corrective to the weakened standard error estimates under single imputation. Lastly, an MI strategy is more complicated than the other imputation approaches, but it has fewer statistical disadvantages and for this reason it was selected for this study.

4.5.2 Non response bias

In order to mitigate the impact of non-response bias, every attempt was made to maximise the response rate. Non-response bias is bias that can arise in the findings of the survey due to individuals refusing to take part in the survey or answer questions; and the response rate (Saunders et al., 2012). Some of these were already mentioned above but here are some of the practices that were used to help maximise the number of firms participating in the study: a) producing a well-designed questionnaire; b) ensuring that questions were concise and clear; c) attempting to get export associations and chambers of commerce to sponsor the study; d) providing respondents with a non-monetary incentive such as a summary of the research findings; e) ensuring that the questionnaire did not request any sensitive information; f) including in the questionnaire a deadline date for returns and a promise of confidentiality; g) producing a covering letter which clearly outlined the purpose of the study; and i) sending reminder mailings and telephone calls. These practices ensured that as large a number of firms as possible took part in the study thus raising its profile and credibility. However, the issue of non-response bias remained

to be explored in so much as determining the extent to which early, and late responders had similar responses. The issue of non-response regarding the answers to questions were dealt with earlier so only non-response in relation to the survey or response rate was dealt with here.

Non-response bias analysis determined whether there were any bias in the sample among early and late respondents, as late responders could be viewed as a proxy for those that could not have participated in the survey. Literature has outlined a few ways to investigate non-response bias (e.g., Weisberg, 2005; Armstrong & Overton, 1977). The extrapolation procedure was deployed here which assumed that late respondents were similar to theoretical non-responders. In the study 184 individuals were deemed as early responders and 112 were late and in the latter group much more effort was made to obtain a response including the greater use of telephone call backs/reminders. Levene's and t-tests (independent sample) were used to compare the variance and means of early and late respondents on their sample characteristics. The Levene's test revealed no significant variation in the variances of the early and late groups with the F-values ranging from 0.101 to 0.524 (at the 95% confidence interval). The t-test results on the similarity of the means between the groups were from 0.054 to 0.598 above the minimum *p*-value of 0.05. These results show that there is no non-response bias in the sample, meaning early and late responders (the latter as proxy of non-respondents) had similar characteristics. It should be noted again that a gap could exist between the moments when the survey was posted and when the respondents responded to it, given the method of delivery. This gap in time should be borne in mind when interpreting the results presented here.

4.5.3 Common methods bias

An important consideration for any cross-sectional research design was the issue of common method bias (CMB). CMB tends to occur when the predictor variable (e.g., current export performance) and its antecedent factors are collected from the same source, which is the case for this study. If no consideration was given to CMB it may lead to two pernicious results: it can bias the estimates of construct's reliability and validity and/or bias the parameter estimates of the relationship between constructs (MacKenzie & Podsakoff, 2012). The research took into account the following procedural and statistical remedies to control for method bias: 1) where possible predictor and antecedent variables would be obtained from different sources – that however was not possible; 2) the predictor and antecedent variables were measured in different context – partially done; 3) the source of CMB were identified, where and if present; and 4) the CMB was validly

measured (Podsakoff et al., 2003). Other specific administrative activities were taken to reduce the possibility of CMB in this study such as: 1) questionnaire items were devised to be clear, concise and specific. They were largely based on previously validated scales; 2) the survey was online which aimed to reduce the effects of social responsibility bias, that is respondents tending to answer question in a manner that was viewed favourably by others (Podsakoff et al., 2003); and 3) the online survey was set up to prevent individuals going back and changing responses to questions. This would have made it impossible for individuals to maintain artificial consistency between answers or identify patterns in the questions, which would have helped control both for the consistency and social desirability biases (Podsakoff et al., 2003).

Tests were conducted to determine common methods bias as well as identifying the sources and their measurement. The first test was the Harman's single factor test with an unrotated factor solution to determine if the majority of variance in the data can be explained by a single factor (Podsakoff & Organ, 1986; Podsakoff et al., 2003). In order to achieve this, the number of factors extracted in the exploratory factor analysis (EFA) was constrained to one (rather than extracting via eigenvalues). The single factor explained 37.7% of the total variance which is below the commonly accepted threshold of 50%; this suggested that common method bias was not necessarily a problem. In addition to the Harman's test for CMB, a general method factor test was also carried out in CFA to confirm these results (Podsakoff et al., 2003) and also used by Sousa and Bradley (2008) and Lages et al (2008). The test involved a CFA with a general or single factor containing all the observed items. A poorly fit model would suggest that common methods bias was minimal if existed and indeed this was the case for the general method factor model which yielded goodness of fit scores of CFI = 0.46, TLI = 0.43 and RMSEA = 0.169. These scores are significantly outside the acceptable thresholds of >0.90 in the case of CFI and TLI and <0.8 in the case of RMSEA.

4.5.4 Sample characteristics

The unit of analysis for this study was the firm rather than individual export ventures, and only one individual or informant was asked to take part in the survey from each firm. This person had to have some senior responsibility for the export activities of the firm (e.g., export manager or CEO). Regarding the firm level data, the review carried out for this study revealed that 34 of the 47 studies used firm level data for their analysis instead of export venture. The justification for firm level analysis is based on internalisation theory which states, where there are market imperfections, firms will

internalise both their tangible and intangible advantages to extract maximum returns (Sousa et al., 2008). In other words, export performance can be investigated at the firm level because advantage derived from specific areas of a business will be added to the firm's total learning process and used in other areas of the firm if necessary as it would be impossible to isolate that learning. Sousa et al (2008) also indicated that the separation of data between firm and venture does not exist for most firms as they tend to use broad matrices for items such as sales volumes. At the operational level firms would organise activities at levels that permit joined up working to take maximum advantage of wider organisational learning process. Therefore, using export venture as the unit of analysis could restrict the results in a region that already had a quite small sample frame.

The total usable sample was comprised of 274 respondents whose overall characteristics are presented here. The largest proportion of firms interviewed were based in Trinidad and Tobago (41%) followed by Jamaica (25%) and Barbados (12%). The informants were individuals (e.g., export managers, CEOs, managing directors) within the firms that had some senior responsibility for the export activities of the firm. The international experience of firms in the sample can be divided into two groups, those with over 15 years of international experience and those with less than 10 years (57% and 35% respectively). Fewer than one in ten (8%) had experience of between 11 and 15 years. In terms of their size, nearly half (47%) of the sample were firms with fewer than 50 employees. Two fifths (42%) of the sample were firms with 50 to 249 employees and one in ten (11%) with 250 or over. As another measure of size, two thirds of firms (68%) had revenue of US$1 million, approaching one in five (18%) had revenue of between 1 and 5 US$ million and one in seven (14%) revenue of over US$10 million. The largest proportion (46%) were firms in the food industry, followed by those in chemicals (16), non-metallics (7%) and textile (6%). In regard to international activities, half of firms (51%) have between 1 and 5 export markets and a further 27% have between 6 and 10 markets. Around one in twenty (6%) have more than 20 markets. Most of their trade is done in emerging markets (72% of firms) with more than half of this being conducted in the Caribbean region itself (54%) and Central and South America (16%). One in seven (14%) firms export to the North American market and one in ten (10%) to Europe (see Appendix 5).

The analysis, as will be discussed below, includes *post hoc* analysis at the multiple group level that is looking at variations in the results for two groups of firms; those that can be described as operating in low R&D intensity industries (161 firms) and those

operating in medium-high R&D intensity industries (107 firms) (see Appendix 5). According to the OECD (2012), low R&D intensity industry firms are those that are involved in manufacturing activities such as recycling, wood (e.g., pulp, paper, paper products, printing and publishing), food products (e.g., beverages and tobacco), textiles (e.g., textile products, leather and footwear) (see Appendix 1). The medium-high R&D intensity industry firms, which is a much wider group, operate in industries such as rubber and plastic products, refined petroleum products, non-metallic mineral products, electrical machinery and apparatus, motor vehicles, chemicals excluding pharmaceuticals, pharmaceuticals and medical, precision and optical instruments. The OECD based its classification on the intensity of research of development within these industries, which partly supports the aim of this study in regard to its application of the levels of adaptation in firms' activities. They cautioned that the classification is relative since there could be examples of firms that fall outside their assigned grouping where they may undertake higher levels of research and development as ascribed, but this study concurs with their conclusion that this would only be an exception.

4.5.5 Data Analysis

The majority of studies into export performance use a form of multivariate analysis such as factor analysis, multiple regression analysis, and discriminant analysis (e.g., Chen, Sousa, & He, 2016; Sousa et al., 2008 and the literature review for this study). However, this study used structural equation modelling (SEM). SEM has become widespread in social sciences, indeed prior to 1990 fewer than ten articles using SEM were published in marketing journals but in the period since 1995 over two in three articles applying SEM appeared (Ullman & Bentler, 2013). SEM is best described as "a collection of statistical techniques that allow a set of relationships between one or more independent variables (IVs), either continuous or discrete, and one or more dependent variables (DVs), either continuous or discrete, to be examined" (Ullman & Bentler, 2013). SEM is otherwise known as casual modelling or path analysis (Hair et al., 2014).

The use of SEM has a number of distinct advantages for this study: it measures the relationship between (latent) factors, relationships which are free of measurement error; the reliability of measurement can be accounted for explicitly within the analysis; and complex relationships can be examined (Hair et al., 2014; Ullman & Bentler, 2013). Noteworthy, SEM allows testing at both the structural level and the measurement level, thus encompassing confirmatory factor analyses techniques, which are suited for testing the interdependence between factors (Hair et al., 2014). Due to its ability to produce

models with complex interdependencies and its separate consideration of measurement and structural models, SEM was most suited for this study.

As already indicated the SEM approach first involved a measurement model which is undertaken using a confirmatory factor analysis (CFA). The aim of the CFA was to assess the whole measurement model prior to hypotheses testing. Measurement theory specifies how observed items logically and systematically represent constructs that are involved in a theoretical model. Principally, the CFA measured and tested the goodness of fit of the model which ensured unidimensionality of each factor (Gerbing & Anderson, 1988). Unidimensionality means that a set of observable items can be explained by a single underlying construct (Hair et al., 2014). CFA is largely concerned with the structure of data and confirms how well the items and factors are related to each other. The strength of the CFA is its ability to test the unidimensionality of scales developed through a theoretical interpretation of the literature. The goodness of fit it measures is assessed using the chi-square statistic, in combination with Comparative Fit Index (CFI), Tucker Lewis Index (TLI), and RMSEA indices, as they are more or less sensitive to sample size than the chi-square and allow for model complexity (Bagozzi et al., 1991). The CFI is an indicator of relative noncentrality between a hypothesised model and the null model of modified independence (i.e., a model where only error variances are estimated). The TLI rewards for model parsimony or penalises for model complexity, the RMSEA gives the average amount of misfit for a model per degree of freedom. The recommended thresholds for assessing models are: CFI $\geq$0.95; TFI$\geq$0.95; and RMSEA$\leq$0.06 (Hu & Bentler, 1998; 1999).

The rationale for relying on these four indexes was based on the absence of a single standard for evaluating model fit (except perhaps for the chi-squared statistic). Bogazzi and Yi (2012) articulated this shortfall in the ability of these indices to meet the following requirements. Where one needs: (a) an index confined to a precise range such as 0.00 to 1.00 inclusive [the TFI can exceed 1.00 for very good model fits, and the CFI is restricted to a maximum of 1.00, but without this restriction also could exceed 1.00] ; (b) distinct cut-off values [but some disagreement exists on what these should be]; (c) provision for penalising model complexity/rewarding model parsimony [the CFI tends to fit more complex models better than parsimonious ones; the TFI and RMSEA tend to reward for parsimony/penalise for complexity, but can disagree between themselves at times]; and (d) indices independent of sample size [the CFI and RMSEA are relatively independent on sample size; but the TFI is not]. Whilst no single index can meet the above

criteria, the set of four collectively provides satisfactory criteria for overall model evaluation. Hu and Bentler (1999) indicated that two of the four indices may be enough for model evaluation (RMSEA and CFI). But obviously using all four indices would produce a more rigorous assessment of a model.

The second aspect of the analysis was testing the theoretical or structural model where the primary focus shifts from the observed variables to the relationship between the latent constructs. SEM provides a rigorous way of empirically examining a theoretical model by incorporating both measurement and structural models in one analysis (Hair et al., 2014). For this study an SEM using maximum likelihood estimation technique was applied to test the hypotheses. As with the CFA, the same indices and thresholds were used to measure goodness of fit, which were the CFI, TLI, RMSEA and chi-square. The structural relationship between the constructs were represented empirically by the structural parameter estimates (or path estimates) which were either standardised or unstandardised. The R squared was also provided for each dependent factor, indicating the extent to which the given variable could be predicted using a linear function of a set of other variables. It is important at this stage for dependent variables to have sufficiently robust R squared. An R squared that is very low would mean that the drivers of a dependent variable are not providing an adequate explanation.

A *post hoc* analysis includes multiple group analysis which offers a more granular insight into the research findings compared with a single group sample. The analysis focused on whether or not components of the measurement model and structural model were invariant across two sets of business categories (low or medium-high R&D intensity). The aim of this analysis was to ensure that reported differences in the findings between the two groups were based on their individual traits rather than measurement. Configural, metric and scalar invariance tests were carried out to test for model equivalence. Invariance was tested using the chi-square difference test as well the change in CFI both from the differences between an unconstrained and fully constrained models (see Byrne, 2010). In the case of the chi-square test, the models are invariant when the p=value is significant at the 95% confidence level. The CFI delta (or change) between the two group models had to return scores below 0.01 to verify invariance. Where the condition of invariance or equivalence was met, the difference between the groups would only have been as a result of the differences between their characteristics rather than inconsistencies in their measurement.

4.5.6 Reliability and validity

The latent variables in the CFA were assessed on their internal reliability, convergent validity and discriminant validity to ensure that the latent constructs met minimum thresholds for their inclusion in the structural model. First, the construct reliability was assessed by calculating the composite reliability (CR) scores for each factor (see Hair et al., 2014). The minimum threshold for any construct score would be obtaining a CR score greater than 0.70; the CR scores for the study were between 0.87 and 0.96, indicating strong construct reliability. Second, convergent validity measured the degree to which measures of the same concept were related (Hair et al., 2014). In other words, if there was a convergent validity problem, this would mean that the variables did not correlate well with each other within the latent construct. That is the latent factor was not well explained by the observed variables. This was assessed using the Average Variance Extracted (AVE); with a minimum threshold of 0.5. Results higher than the minimum 0.5 meant that the variables correlated more highly with variables inside their construct than those from any other outside factors. The results for this study indicated that there was indeed convergent validity with scores ranging from 0.52 to 0.82. Lastly, discriminant validity assessed the degree to which two similar concepts were distinct. It confirms whether one can empirically differentiate the constructs from other constructs that may be similar. One way of measuring discriminant validity is by taking the square root of the AVE and assessing to see whether that is greater than inter-construct correlations. The results returned no discriminant validity problems.

4.5.7 Moderated mediation analysis

In addition to the hypothesis associated with the direct relationships between variables, this study went further by testing a number of indirect relationships. The conceptual model is a moderated mediation model, which looked at an indirect effect through mediating and moderating variables. For example, if X represents the independent variable, M the mediating variable, Y the dependent variable and V the moderating variable. The aim of this aspect of the analysis was to determine the mediating effect of M on the direction relationship between X and Y. In the context of this research, the analysis resulted in an estimate of the effects of the antecedent X, past export performance, on the presumed causal consequent M, firm capabilities (X → M). The analysis generated an estimate of the effect of firm capabilities on export performance, which was the final consequent Y (M → Y). The M → Y effect was then moderated by V, the firm's adaptation strategy. Theory guided the decision as to which paths was

estimated as moderated. Such models are operationalised, tested and discussed in the substantive literature (e.g., Sok et al., 2016; Hayes, 2013). The reasons for placing the moderating effect at this point (M → Y) are because: 1) the outcome of learning from past export performance and the subsequent execution of change in the organisation is a lagged event in part since information is sometimes collected to be stored for future use (Souchon & Diamantopoulos, 1997); and 2) it is the interaction between an adaptation strategy and a firm's capabilities that ensures advantage. In a nutshell, the indirect effect of past export performance on current export performance through a firm's capabilities was the product of these two effects, one unconditional, and one conditional.

In advance of looking at the study results, it is important to note that mediation models are called 'causal' models, but valid causal inference requires more than just establishing association between variables through statistical analysis. The assumptions of causal inference in mediation analysis are indeed difficult to meet, even in experiments, and are sometimes hard or even impossible to test (Preacher, 2015). For this reason, it is worth noting that the causal language used in this study is done loosely, recognising that there may be non-causal interpretations for association observed in the findings. The author takes the position that statistics in and of themselves have little to say about whether two variables are causally related. They have much to contribute by providing tools, descriptive and inferential, that can quantify effects that may or may not be causal and test hypotheses about potential causal relationships (Hair et al., 2014). Mediation using SEM has the advantage in that it has the capacity to model relations between latent variables to isolate assumed causes and effects from extraneous variables (Alasuutari, Bickman & Brannen, 2008). In the end, inferences are products of our minds rather than mathematics, and the strength of this research would be based on good theory and research design, and strong logical argument, when interpreting the research results and statistical outcomes. The CFA and SEM analyses for this study were all computed using the computer software AMOS (e.g., Byrne, 2016).

4.6 Research Ethics

The study was conducted under the ethical rules set out by Birkbeck, University of London, which are largely based on a few simple principles: the importance of obtaining informed consent and the need to ensure confidentiality of responses. Informed consent was based on the principle of respect which considers the moral concern for the autonomy and privacy rights of those participating in the study (Fisher & Anushko, 2008). In its

basic form, it represents the moral necessity of obtaining consent to participate in research that is informed, rationale and voluntary.

As part of the ethical review process, this study was deemed to pose no special concern in terms of human ethics. Informants were provided with all the information about the study that would be expected to influence their willingness to participate (see Appendix 7). Respondents were also promised that their confidentiality would have been protected. The procedure used to achieve confidentiality was to have as few identifiers as possible on respondents. Each participant was provided with a unique number and the identifiers were kept in a separate limited-access file (Weisberg, 2005). Further attempts were made to ensure that sources were not misrepresented, accurate data were always submitted, and sources and data being stored and not destroyed or concealed. Indeed, participants to the survey were not required to report any sensitive or confidential data on their company.

4.7 Summary

Based on a positivist paradigmatic stance, this chapter has presented this study's overall methodology. Methodologically, an online survey was used for data collection. The questionnaire was developed using an iterative process, which in the first instance involved the development of the survey instruments from the extant literature. In order to reduce measurement error, the questionnaire was pre-tested and piloted with the assistance of a number of academics, industry professionals, and a sample of respondents. The study was conducted amongst export professionals from the English-speaking Caribbean. In the absence of a known sample frame of these professionals, one was developed with the assistance of several agencies in the region. The overall number of firms in the English-speaking Caribbean that were involved in international trade was relatively low and as a result they were all approached to participate in the survey. In total 274 firms provided surveys that could have been included in the study which represented about a quarter of firms. They represented firms with a good mix of international experience. They were mostly SME and do the greater part of their international ventures in the Caribbean, Central and South America.

Regarding sample treatment and analysis, cases with over 10% of missing data and those with zero engagement were deleted from the sample. Other unignorable missing data, which was about 200 cases across all the variables, were found to be MAR and were replaced using a multiple imputation technique. Test for non-response bias revealed that this was not a problem for the study. Early and late respondents were compared (using

independent *t*-test) and no significant difference exited between the characteristics of the group. The late respondents were used as a proxy for non-response. The Harman's and general method factor tests for common methods bias (CMB) both showed that this issue was not of great concern in the data. The data were analysed using structural equation modelling (SEM), which had a measurement element (confirmatory factor analysis) and then a testing element (SEM). The hypotheses were tested in a moderated mediation framework. The goodness of fit, reliability and validity tests met the minimum requirements for sound analysis. Lastly *post hoc* multiple group analysis was conducted to offer a more granular insight into the research findings. The analysis focused on whether or not components of the measurement model and structural model were invariant across two sets of business categories (low or medium-high R&D intensity).

CHAPTER 5. MEASUREMENT MODEL

This chapter presents the first of the two-step approach involved in undertaking structural equation modelling (SEM). It deals with the measurement model of the SEM process, whilst the second aspect deals with the structural model or hypothesis testing process which is discussed in the next chapter. The measurement model attempts to define the relationship between observed and unobserved variables (Byrne, 2010). In advance of conducting analysis for the measurement model, the scale items are defined and presented with accompanying evidence on their reliability. The scale items are obtained from the extant literature as indicated in the previous chapter and only those with excellent reliability scores were included in the conceptual model. The reliability was determined by Cronbach's alpha or composite reliability scores whose minimum threshold is 0.70 (Hair et al., 2014). The measurement model was developed using reflective rather than formative variables. Before conducting the confirmatory factor analysis, the data were further screened checking for normality, outliers and item purity. A normality test revealed that the data were normally distributed with all kurtosis scores falling within the minimum and maximum thresholds. Using the outlier labelling rule one case was deleted as the informant was viewed as being unengaged and also fell outside the rejection threshold of the rule. All observed items returned excellent internal reliability with their latent factors in line with the findings from the literature.

The baseline measurement model which included all the theorised observed variables or items returned reasonably strong goodness of fit scores with all goodness of fit measures falling just within their minimum threshold. Accepting that factors were strongly related, the model was then re-specified to help strengthen the goodness of fit measures. This was achieved by reviewing any issues that were present in the modification indices, standardised residual covariance and factor loading scores. Following this process, the model yielded much stronger goodness of fit scores with all constructs or latent factor maintaining at least four observed items. As the model included an element of *post hoc* multiple group analysis, which was deployed at the SEM phase, invariance tests were carried out at the CFA stage to determine whether the models for firms belonging to the low R&D intensity and medium-high intensity industries were invariant. Invariance means that differences in the findings between the groups would only be as a result of trait differences rather than measurement ones. The measurement model also returned excellent convergent validity, discriminant validity and composite reliability scores, indicating that the items and their factors had good construct validity.

Additionally, a second order CFA model with an aggregated firm capabilities dimension returned excellent goodness of fit as well as excellent reliability and validity scores. The chapter ultimately shows that the measurement model fulfils all the necessary requirements for confirmatory factor analysis, and provides evidence to suggest that there is a strong relationship between the observed and unobserved variables as conceived in the conceptual framework and in turn these are well suited for the structural analysis or hypothesis testing.

5.1 Measurement scale

The confirmatory factor analysis (CFA) of a measurement model is most appropriately conducted with fully developed assessment measures or scale items which have been demonstrated to have satisfactory factorial validity in previous studies (Byrne, 2010). The following subsections presents the scale items adopted from past studies for the constructs used in this study. The scale items are defined as the observed variables which act as surrogates for the latent constructs or factors. Information on the rationale for using the specific scale items for each construct is provided and this is largely based on conceptual fit, reliability, validity and evidenced generalisability of the scales, where possible. The scale items selected for the factors of market linking, technological, marketing, technology, information technology, adaptation strategy, past and current export performance are presented below. All the links between the observed and unobserved variables must be viewed as reflective rather than formative. Whilst this was discussed earlier, a reflective variable is one that is caused by its latent variable, rather than the other way around.

5.1.1 Firm capabilities scales

Justification for the capabilities scale items is based on evidence provided by DeSarbo, Di Benedetto, Jedidi & Song (2006), and replicated in other studies such as DeSarbo, Di Benedetto, Song (2007) and Di Benedetto, DeSarbo, & Song, (2008). The authors developed the scales in two stages. In the first stage, they assessed the construct validity of the scales by correcting ambiguous scale items, or items that could have been interpreted in different ways by informants. In doing so, they elicited the help of seven judges with backgrounds in measurement development to help assign their items into a number of strategic capability scales. Once that initial testing phase was completed, they established the convergent and discriminant validity using the Davis' (1998) procedure. In the second stage, they again examined all the scale items and eliminated inappropriate items as well as those that were inconsistently classified. The scale items were then

combined into an overall instrument for additional pre-testing among 32 managers to further test the scale reliability and validity and then remove any items that were deemed inappropriate. Lastly the scales were assessed by 41 Executive Master of Business Administration students whom at the time were taking a course in new product development.

Market linking capabilities

The market linking capabilities incorporated scale items that were centred on a firm's market sensing and linking outside the organisation. It measures the comparative state of relations between a firm and its customers and channel actors. The scale items used by DeSarbo, et al., (2006) were derived from Day's (1994) descriptions of market linking capabilities. They used a 0 to 10-point scales (0 = much worse than our competitors and 10 = much better than our competitors) for respondents to rate their actions relative to the top three competitors in their industry. The capabilities referred to their ability to create and manage durable customer relationships; create durable relationships with suppliers; retain customers; and bond with wholesalers and retailers. The results from their tests returned a coefficient Cronbach's alpha for the scale items of 0.84, indicating high measurement reliability. For the purpose of this study, two tweaks were made to scale items: first, the point scale was reduced from 11 to 7 points, where 1 meant much worse than our competitors and 7, much better than our competitors. This is something the authors later did in their studies. A 7-point scale does not change the characteristics of the data (Dawes, 2008) however it increases efficiencies in measurement, cost and response times (Carifio & Perla, 2007). Second, one item was added to the scale items following the pilot test of the questionnaire. The informant felt that relations with inter-governmental organisations were an important area of relations when achieving augmented market linking capabilities.

Technology capabilities

Technology capabilities are related to firms' process efficiency, cost reduction, consistency in delivery, and competitiveness. Technology capabilities should not be confused with different types of technology, for example, low technology or high technology firms. The scale items looked at intra-technological issues which are the concerns of firms irrespective of how high or low technology their operations might be. DeSarbo, et al., (2006) obtained the initial scale items again from Day's (1994) descriptions of technological capabilities. Using the same 0 to 10-point scale as above, they asked informants to rate their firm relative to their three major competitors in their

industry. Informants were asked to comparatively rate their firm's capabilities in areas such as new product development, manufacturing processes, technology development and acquisition, technological change forecast, production facilities, and quality control. The results from their tests returned a Cronbach's alpha of 0.96, which represented excellent measurement reliability. The technology scale items were left largely unchanged except for the reduction of the scale from an 11 point to 7 point scale.

Marketing capabilities

The marketing capabilities scale items were developed using marketing capabilities posited by Conant, Mokwa, & Varadarajan (1990) and DeSarbo et al., (2006). The scale items touched on firms' comparative performance in relation to their customers, competitors and marketing strategy more widely. Specifically, the informants were asked to compare their relative performance with respect to their knowledge of customers and competitors, integration of marketing activities, skills in segmentation and targeting, and effectiveness of pricing and advertising programs. As with the previous capability areas, respondents were asked to rate their firm relative to the top three competitors in their industry on scales of 0 (much worse) to 10 (much better). The measurement reliability of these items was also excellent (Cronbach alpha = 0.93) indicating that marketing capability was well explained by the underlying surrogate or scale items. The only change carried out for this study was to again reduce the point scale from 11 to 7, where 1 meant much worse than competitors, and 7 meant much better than competitors.

Information technology capabilities

The information technology factor was developed as a completely new scale of IT capability, which was designed to measure the capabilities that assist firms to create technical and market knowledge and facilitate communication flows across functional areas. The individual scale items were largely based on the literature with large contributions from Day (1994), and Bharadwaj et al. (1999). At the conclusion of the scale's development by DeSarbo et al., (2006), the items were specifically looking at firms' IT systems' ability to facilitate technology and market knowledge creation, to facilitate cross-functional integration, and to support internal and external communication. The coefficient Cronbach's alpha for these scale items was 0.83, which indicated high measurement reliability. For each item, respondents had to rate their firm's IT capabilities compared with their top competitors on the 0 – 10 scale, where 0 (much worse) and 10 (much better). As with above, this study deployed a 7-point scale where 1 meant much worse and 7 much better than their competitors.

5.1.2 Adaptation strategy scale

The adaptation measurement scale was developed by taking inspiration from prior research on export marketing adaptation which typically considered the four Ps of the marketing mix (e.g., Katsikeas, Samiee, and Theodosiou 2006; Lages, Jap, and Griffith 2008 and Lages, Abrantes, & Lages, 2008). In these studies, the Ps were scaled as latent variables. Informants were asked to indicate the degree to which they would adapt items within these dimensions with the aim of measuring levels of adaptation or conversely standardisation in their operations. However, consistent with Navarro et al. (2010) and Magnusson et al., (2013) it was decided to include only one indicator for each adaptation scale item. Further evidence for deploying such an approach was provided in a review by Theodosiou & Leonidou (2002) where they concluded that the achievement of an appropriate overall "coalignment" or "fit" between international marketing strategy and the context in which this strategy is implemented led to superior performance, rather than the adoption of marketing strategy standardisation or adaptation. In other words, they indicated that strategy (whether standardised or adapted) would lead to superior performance only to the extent that it properly matches the unique set of circumstances that the firm is confronted by within markets.

The composite reliability (CR) of the scale items with the four overall Ps was 0.89 in the case of Magnusson et al., (2013) and had a Cronbach's alpha of 0.92 in the case of Navarro et al. (2010). The results demonstrated excellent reliability in the ability of the overall indicators to be surrogates of an adaptation strategy. Respondents were asked to what extent over the past three years, if at all, did their firm adapt each dimension on a scale from 1 to 7 where 1 (extensive adaptation) and 7 (no adaptation) helped to improve export performance. This scale was reversed for the reasons outlined in the previous chapter but still using the same 7-point scale as implemented by Magnusson et al., (2013). The time aspect of the question was adopted from Lages, Jap and Griffith (2008) in a scale that returned Cronbach's alpha of between 0.81 and 0.89 and the content and face validity was assessed by four Portuguese judges who were university lecturers in marketing. For the purpose of this study, a number of social and technology-based items which are closely linked to the marketing mix items were also included in the scale such as manufacturing processes, quality controls, knowledge generation activities, behaviour which help strengthen relationship and IT systems for measuring performance (e.g., Rodriguez et al., 2008).

5.1.3 Export performance scale

Export performance was conceptualised as meeting a firm's international objective through strategic and financial means. In developing the scale items for export performance only subjective measures of the financial and strategic elements of performance were used (e.g., Zou & Stan, 1998; Lages & Lages, 2004; Lages & Montgomery, 2001 and Lages, Jap, & Griffith, 2008). The scale was developed with three dimensions of export performance; export intensity, achievement and export satisfaction. The scale items within these three dimensions were measured for both past performance and current export performance. Current year export performance was measured for the year 2016, but past performance was measured up to the financial year ending 2012. No significant changes in international market conditions were noted in that period to have adversely affected the measurement of past export performance (Carib Export, 2017). Looking specifically at Lages & Montgomery (2001) (and, to a lesser extent, Lages, Jap & Griffith 2008), the individual items making up the scale were export sales volume, export sales revenue, export profitability, market share and overall export performance. In the case of past export performance, respondents were asked to rate these items on a 7-point scale where 1 (not satisfied at all) and 7 (extremely) for the past year.

The assessment for internal reliability returned a Cronbach' alpha of 0.95, meaning that there was excellent reliability. In the case of current year export performance, respondents were asked to rate how well their firms achieved their objectives for the financial year. Again, the Cronbach's alpha was excellent, returning a score of 0.95. The scale items used in this study were export profitability, export sales growth, export market share, entry to key markets, and performance of export venture(s), which emanated from the studies highlighted here as well as other studies in the literature – all returning high levels of reliability where the information was provided (e.g., Brouthers & Xu, 2002; Katsikeas, Piercy, & Loannidis, 1996; Sousa & Bradley, 2008).

5.2 Measurement model

SEM analysis comprises of two main parts; the measurement model and the structural model. The measurement model defines the relationship between the observed and unobserved variables, while the structural model defines the relationship among unobserved variables of constructs (Hair et al., 2014). In other words, the first phase establishes the quality of the measures within the constructs or factors and the second estimates the whole structural or conceptual model. One of the benefits of the SEM two-way approach is that findings for the measurement models can be interpreted separately

from those for the conceptual model. Indeed, Steenkamp and Van Trijp (1991) noted that the goodness of fit of a model is dependent on the number of parameters in the measurement and structural models, with fit getting poorer if there are many parameters to be estimated. The two-way approach was used in this study involving: the estimation of the measurement model for the latent or unobserved constructs using confirmatory factor analysis (CFA); and fixing these estimates to proceed with the estimation of the structural model (e.g., Hair et al., 2014; Netemeyer et al., 1997). The following sections discuss the process of conducting the measurement model analysis using CFA. The structural aspect of the SEM will be discussed in the next chapter as it is deployed to test the study hypotheses.

It is also worth noting that measurement models can be of two types (reflective and formative) and it is the reflective measurement models that will be used in this study. A reflective model is based on the idea that latent constructs or factors cause the measured variables, whereas a formative model assumes that the measured variables cause the construct or factor (Hair et al., 2014). The rationale behind the development of the two forms of measurement model reflects the notion that "in many cases, indicators could be viewed as causing rather than being caused by the latent variable measured by the indicators" (MacCallum & Browne, 1993, pp.533). The contrast between the two model types can also be defined as a linear function of the indicators in the case of the formative model, contrary to the reflective model which are measured as a linear function of the latent factor. The reflective measurement model was used for the first stage of the SEM and in doing so a number of other differences between the two models had to be taken into account such as: the omission of a formative indicator which could alter the nature of a construct; no specific pattern of relationship being required between formative indicators (i.e., indicators could have positive or negative impacts); and a formative model being used that is only possible when embedded in large models (Diamantopoulos, 1999; Hair et al., 2014). In the opinion of the author these other criteria only point to the use for a reflective model.

5.3 Data Screening

Data screening is an essential step in the preparation of the dataset for confirmatory factor analysis. Some aspect of this was already dealt with in the previous chapter such as the missing data process but other aspects are dealt with here. Data screening can be described as the process by which data are cleaned and prepared prior to statistical analyses, which ensures that the data are usable, reliable, and valid for testing causal

theory (Hair et al., 2014). The process explores a few graphical and numeric data outputs to determine the normality of the data in respect to their level of skewness and kurtosis. These results, as well as some descriptive statistics for the measures (e.g., mean, range, and standard deviation), are provided in Appendix 8.

5.3.1 Normality

The data collected met normality requirements for hypothesis testing as they fell within the acceptable ranges for skewness and kurtosis. Normality is the degree to which the distribution of the sample data corresponds to a normal distribution (Hair et al., 2014). The normal distribution plots all possible values of the variables on a horizontal axis and the probability of these occurring on a vertical axis. These are then clustered around a mean in a symmetrical (bell-shaped) or normal curve (Hair et al., 2014). The data are positively skewed when there are few large values and tails off to the right, or conversely, they are negatively skewed when there are few small values and tails to left. Kurtosis measures the peakedness or flatness of a distribution when compared with the normal distribution. Results yielding a positive value of kurtosis indicate a relatively peaked distribution (that is little variation between items) and a negative value indicates a relatively flat distribution. The range of acceptability for skewness and kurtosis value varies in the literature; Hair et al., (2014) denoted a -1 to 1 range whilst Kline (2005) denoted a -10 to 10 range. In this study only the kurtosis and skewness values falling outside the range of -2.2 to 2.2 would have been deemed as a distributional problem (Sposito, Hand, & Skarpness, 1983). This middle range was used because: a) significant skewness and Kurtosis values can arise even from small deviations from normality (Field, 2009); and b) typically, data from 7-point scales are not normally distributed (Malthouse, 2001). The assumption of normality was also checked by examining the frequency histograms and their distribution curves, which were all bell-shaped, so under all forms of assessment, the data met the requirements of normality.

5.3.2 Outliers

Although the data on individual variables may show normality, it was also important to determine whether any outliers still existed. An outlier is an observation that has a substantial difference between the actual value for a dependent variable and the predicted value (Hair et al., 2014). It is necessary to identify any outliers because they can be viewed as an inappropriate representation of the population from which they were drawn. Some of the main causes for outlier cases are not applicable to this study given the very controlled data collection and screening procedures deployed in the online survey

such as incorrect third party data entry; the existence of mostly Likert scales; and the other measures highlighted in the previous chapter (Weisberg, 2005; Tabachnick & Fidell, 2000). That said, the failure of respondents to engage in the survey could present some examples of outlier cases. In order to verify this assumption, a univariate outlier detection method was applied as proposed by Tabachnick and Fidell (2000) and z-scores computed for all items. A number of variables fell outside the acceptable range of -3.29 and 3.29 indicating that they contained some outlier responses. Since the variables were on a Likert scale (1 to 7) however, the author reviewed participants' responses and concluded that they were actually legitimate (see appendix 9). On further scrutiny, using the outlier labelling rule (OLR) formula, one case was found to be persistently outside the lower limits for every variable that had returned an outlier problem (Hoaglin, Iglewicz, & Tukey, 1986). This one case was excluded from the dataset as the informant was shown to be unengaged with the process.

5.3.3 Item purification

A preliminary step in the data analysis was to carry out some item purification of the instruments by computing the coefficient alpha and the correlation matrix to determine whether any items were within their latent factors as theorised. This process is not always necessary as one would expect the items to fit, as they were taken from validated cases in the literature. However theoretical dimensions should be separated in advance of conducting factor analysis, and this is what was done here (Sharma, 1996). Nonetheless in order to ascertain whether the items were strongly linked to their dimensions early in the analysis was a quite useful step (Churchill, 1979). This was achieved by using Cronbach's alpha to determine the unidimensionality and internal reliability of items within their latent factors. The reliability of the items was assessed on a range from 0 to 1, with values of 0.60 to 0.70 were deemed the lower limit of acceptability (e.g., Hair et al., 2014; Nunnally, 1967). No Cronbach's alpha returned values below the lower threshold of 0.70 and indeed all values were above 0.85, exhibiting strong initial reliability (see Table 5.1 below). The adaptation, marketing, past export performance factors returned the highest scores of 0.96, 0.92, and 0.92 respectively.

Table 5. 1 Internal reliability

Dimensions	Cronbach's alpha
Market linking capabilities	0.88
Technological capabilities	0.89
Marketing capabilities	0.92
Information technology capabilities	0.85
Adaptation strategy	0.96
Past export performance	0.92
Current export performance	0.89

Another early assessment was carried out: to determine the levels of correlation between the items within the factors or dimensions. The purpose of this exercise was to check for any sign of singularity (an item being perfectly correlated with another) or multicollinearity (multiple items being highly correlated with others) (Hair et al., 2014). An analysis of the correlation matrix first revealed that within the seven factors, all the items were significantly correlated within their respective dimensions. This meant that the items within the factors were all significantly related. With respect to the appearance of a singularity, no items had a correlation figure of 1, with another item thus eliminating any chance of this. In terms of multicollinearity, the items had strong correlations with other items but in the case of the export performance factors, the individual items seem to have relatively high correlation with each other (see table 5.3 pp. 143). This correlation was not at levels to merit any concern. At the end of the preliminary reliability and collinearity tests no items were marked for deletion as all items fell within their respective dimensions as predicted by the theory.

5.4 Confirmatory Factor Analysis

CFA is a way of testing the extent to which measured variables represent a smaller number of theorised constructs of factors. The CFA provides a confirmatory test of the measurement theory, which specifies how measured variables logically and systematically represent the constructs in the theoretical model (Hair et al., 2014). CFA should not be confused with EFA (exploratory factor analysis) because it uses measurement theory to specify *a priori* the number of factors in the model as well as variables loading on these factors, which EFA do not (e.g., Byrne, 2010; Hurley, et al., 1997). CFA could not be conducted properly without a measurement theory as provided in this study. The CFA procedure for the measurement of a model consists of three broad

parts, which are: a) assessing the appropriateness of the CFA, i.e. whether the items actually belong to the constructs as hypothesised; b) the CFA process involving configural, metric and scalar invariance tests, since the study entails *post hoc* multi-group analysis; and c) once the items are deemed to fall satisfactorily in their factors, the latent variables being then examined for reliability and validity, and measurement model goodness of fit. Once these stages were completed and the results deemed satisfactory the items were fixed (imputed) and then the analysis moved to the structural model phase of the study. Maximum Likelihood estimation was used as a mode of estimation, as it constituted a widely used and robust method that also account for normality discrepancies (Byrne, 2010).

5.4.1 Model identification

The issue of identification centres on whether there is a unique set of parameters consistent with the data. In more technical terms, the model identification issue determines the extent to which a unique set of values can be inferred for the unknown parameters from a given covariance matrix of analysed variables which is produced by the model (Byrne, 2010). In order to achieve this, it was necessary for every latent variable to have its scale determined. This was done by constraining the latent variables as they were unobserved and therefore had no definite metric scale. The scaling requisite was satisfied by constraining to 1 a factor-loading parameter in each of the set of factor loadings. At this stage of a CFA or even a SEM the constraint applies for both the independent and dependent latent variables. The aim of model identification is to have an over-identified model, which means the number of estimable parameters is fewer than the number of data points (i.e., variances and covariances of the observed variables) (Hair et al., 2014). Another aspect of model identification was the importance of having factors, where possible, with ideally four items or variables each. According Hair et al., (2014), three indicators per factor is acceptable, particularly when other factors within the measurement model have more than three indicators. All factors in the measurement model had more than three variables meaning the minimum thresholds were met.

5.4.2 Goodness of fit

Goodness of fit (GOF) was performed to assess the unidimensionality of all the multiple-indicator constructs. GOF also tests the measurement theory by comparing the theoretical measurement model against reality, as represented by the sample. The overall fit of the proposed measurement model was then examined using several absolute fit statistics. First, chi-square test was used, and it is an absolute fit measure, which indicates

the fit between the model and the data (Hair et al., 2014; Byrne, 2010; Czarnecka & Schivinski, 2019). Where the chi-square statistic is significant, the model is denoted as not fitting the data very well. The difference between the estimated and original covariance matrix would have been too large. However, Hair et al., (2014) indicate that chi-square statistics are quite sensitive to the number of variables and large sample sizes (more than 30 and/or more than 250 respectively). Therefore, a second absolute fit index was considered, namely the RMSEA (root mean square error of approximation). The RMSEA tries to answer the question of how well the model would, with unknown but optimally chosen parameter values, fit the population covariance metric if they were available (Byrne, 2010). In other words, the RMSEA is one of the most informative criteria and tests to determine whether the model fits the population covariance matrix, if it were available. The RMSEA is strongly recommended for absolute fit tests because it: a) is adequately sensitive to model misspecification; b) yields appropriate conclusions regarding model quality; and c) is possible to build confidence intervals around RMSEA values. Values less than 0.07 indicate good fit, values of 0.08 to 0.10 indicates mediocre fit, and values larger than 0.10 indicate poor fit (see Hair et al., 2014 and Byrne, 2010).

The study also used a couple of incremental fit statistics to help determine the goodness of fit of the measurement model. The incremental fit measure unlike the absolute fit statistics, assess how well the estimated model fit relative to the alternative baseline or null model (Hair et al., 2014). This implies that no model specification could possibly improve the model meaning that the incremental fit index represents the improvement in fit by the specification of the related multiple item constructs. The most commonly used incremental fit indices are the comparative fit index (CFI) and the Tucker Lewis Index (TLI). The higher the CFI statistic within a range of 0.00 to 1.00 the better the model fit, with Byrne (2010) indicating that a score of 0.90 is a minimum when samples sizes are above 250 cases and the number of variables above 30. The CFI is widely deployed in the literature for its insensitivity to model complexity. The Tucker Lewis Index (TLI) was also considered as another incremental fit index to ascertain the goodness of fit of the model (Byrne, 2010 & Hair et al., 2014). The index ranges from 0.00 to 1.00, with values above 0.90 indicating a good fit. The function of the TLI is to compare the normed chi-square values for the null and specified model, thus considering model complexity.

It should also be noted that there are a wide variety of goodness of fit indices in the literature. Researchers tend to use the ones outlined above, as well as others that were not

discussed here (see Byrne, 2010 & Hair et al., 2014). The individual goodness of fit measures tends to be unique nevertheless they can be classified into three groups: absolute and incremental measures, as discussed above, and parsimony fit measures. The parsimony fit indices were not considered for this study as they are not widely used in the literature (an observation from the literature review as per the previous chapters). The parsimony fit indices are designed specifically to provide information about which model among a group of competing models is best, considering its fit relative to its complexity (Byrne, 2010). Hair et al., (2014) indicated that the decision to use or not these fit indices is not yet settled amongst scholars. They indicated that an index that compare competing models' incremental fit indices provide similar evidence to the incremental fit measures deployed here. They finally argued that the parsimony fit indices may be a good idea in theory but not in practice, as they tend to favour more parsimonious models. It was for these reasons the parsimony fit measures were not considered for this study.

5.5 Proposed CFA model

All constructs (both dependent and independent) were considered exogenous and correlated, which is the basic characteristics of a CFA model (Byrne. 2010). The model proposed *a priori* that a seven-factor structure composed of adaptation strategy (ADPT), marketing (MKTG), market linking (MKTLK), technology (TECH), information technology (IT), past export performance (PPERF) and current export performance (XPERF). In advance of discussing the results from the tests on the model, aspects of the model and list components are as follows:

- Seven factors labelled ADPT, MKTG, MKTLK, TECH, IT, PPERF and XPERF, which are inter-correlated;
- Forty-four observed variables,
- The observed variables load on the factors in the following pattern: adapted1 – adapted9 load to ADPT; experfp1 – experfp5 load to PPERF; mkting1 – mkting7 load on MKTG; tech1 – tech7 load to TECH; mktlk1 –mktlk6 load to MKLK; it1 – it5 load to IT; and experfc1 – experfc5 load to XPERF;
- Each observed variable loads on one and only one factor.
- Errors of measurement associated with each observed variable (e1 – e44) are uncorrelated.

Noteworthy, the information provided above relates only to the initial CFA model and it is not uncommon for modifications to be made to that model to ascertain a better model fit, as will be discussed later. The re-specification is mainly achieved using

modification indices, standardised residual covariance and factor loadings. This is a common practice in the literature when trying to arrive at a suitable measurement model. Indeed, Gerbing & Hamilton (1996, pp. 71) posited that 'most uses of confirmatory factor analyses are, in actuality, partly exploratory and partly confirmatory in that the resultant model is derived in part from theory and in part from a re-specification based on the analysis of model fit'.

5.6 Confirmatory factor analysis results

The results from the CFA analysis are presented here. First the results for the baseline, or conceptual models, is provided, which determines whether the relationships as conceptualised must be accepted. The model is then re-specified to help strengthen the overall goodness of fit by reviewing the modification indices, standardised residuals and factor loadings. Note that the re-specification of the model does not reduce the robustness of the analysis and quality of information emanating from it (Hair et al., 2014). Invariance tests are conducted to determine whether the models were suited for the *post hoc* multiple group analysis. Lastly the section determines the overall construct validity by assessing convergent validity, discriminant validity and composite reliability.

5.6.1 Baseline model GOF

Table 5.2 provides the goodness of fit measures for the baseline model and the re-specification models. The discussion on the re-specification results will be provided later, but first the results of the baseline model are presented. The baseline model is the hypothesised model that was established at the beginning of the study. In a strict CFA model, all aspects of the baseline model have to be included in the measurement model. In other words, the study postulated that a single model based on the theory fit the sample data. The results of the fit marginally met the minimum criteria for goodness of fit set out earlier, such as it met the absolute fit (chi-square being non-significant; and RMSEA < 0.06); and the incremental fit (CFA > 0.90; and TLI > 0.90). However, to ascertain a more robust goodness of fit, the author found it reasonable and logical to move the analysis away from the very strict CFA to a model generation. The model-generating scenario proceeded to modify and re-estimate the model (Byrne, 2010) to strengthen the GOF without losing credibility. Model re-specification is widely accepted and conducted in the literature (Sousa et al., 2008; and the literature conducted for this study).

Table 5. 2 Goodness of Fit statistics

Indices	Baseline model	After re-specification
Chi-square (χ^2)	1757.45	1019.17
Degree of freedom (df)	881	538
p-value	0.001	0.001
CFI	0.92	0.94
TLI	0.91	0.93
RMSEA	0.06	0.06

5.6.2 Model re-specification

The measurement model was modified by examining factor loadings, levels of variance in the indicators explained by the construct, standardised residual covariance and modification indices. First factor loadings were checked for possible double loading issues, that is, where items may be highly related to two or more factors. The levels of variance in the indicators explained by the construct spoke to items returning variance levels below 50% (Hair et al., 2014). The standardised residual covariance scores are similar to z-scores, and represented estimates of the number of standard deviations. The observed residuals are from the zero residuals that would exist if model fit were perfect.

A significant standardised residual covariance score is one with an absolute value greater than 2.58 (Byrne, 2010). Significant residual covariance significantly decreases model fit. The modification indices represent the expected drop in overall chi-square if the parameter were to be freely estimated in a subsequent run. The modification index was assessed alongside par change scores with the latter representing the predicted estimated change, in either a positive or negative direction. The baseline model started with 47 items or measured variables and after the re-specification process, 12 items were removed leaving 35 items with the fit statistics provided in Table 5.2 (see also appendix 6). Given the moderate sample size achieved for this analysis, the reduction in the number of items could only help increase reliability and unidimensionality of the model. Again note, that as all the items are reflective (meaning the latent factors explain the items, rather than the other way round and all items move in the same direction) the removal of a few

items per factor should not alter the measurement model and indeed improve the model parsimony as long as the factors retain a minimum of four items.

5.6.3 Invariance test

In advance of carrying out the *post hoc* multiple group analysis at the SEM stage, it was necessary to test the equality of covariance structures across the low R&D intensity and medium-high intensity industry groups. This is known as an invariance test, which looks to determine whether groups show difference at the model level or not. The basic criterion necessary for multiple group analysis is that groups are not different at the model level. In other words, any differences that arise between the groups following the analysis would be as a result of genuine trait differences rather than measurement differences. If the multiple group models do not achieve invariance or equivalence then the data would not support the *post hoc* multiple group analysis (Byrne, 2014). The invariance or equivalence test comprises of three elements, which are carried out in order and are increasingly more stringent. These are configural, metric and scalar invariance tests, which were all assessed with the results presented below.

Invariance testing begins with the configural model, which tests whether the factor structure represented in the CFA achieved adequate fit for both groups when tested together and freely. That is, no equality path constraints are imposed and judgment for invariance is based solely on the statistical goodness of fit. In this regard, the configural model returned an adequate fit in its representation of the multiple R&D intensity group data. The model exhibited a chi-square of 1909.97 ($p < 0.001$) with 1076 degree of freedom (df) and χ^2/df ratio of 1.78 (less than 3 deemed acceptable), CFI = 0.90, TFI = 0.90, which are only slightly below the advocated threshold. The RMSEA was 0.05 which represents a good fit. Indeed, the RMSEA measure, which is a measure of absolute fit, shows that the multiple group model is a slightly better representation of the data than the overall model (0.05 compared with 0.06). The results returned adequate goodness of fit for the multiple group models indicating configural invariance. The configural invariance test is the baseline test against which more restrictive invariance models are assessed.

Having established configural invariance, metric or measurement invariance assessed the similarity of the loadings across samples. In order to test for metrics invariance, the factor loadings were thus constrained to be the same across groups, using the automated models function of AMOS (Byrne, 2010). Then a chi-square difference test was performed between the unconstrained and fully constrained models. The difference in the chi-square from the configural model was statistically significant ($\Delta\chi^2$ =

57.17 and $p < 0.05$), meaning the models were not invariant at least at the 95% confidence interval but yes at the 90%. Metric invariance was just marginally rejected using the chi-square difference test. By un-constraining only two measures of the five market linking items, which were identified as points of concern, metric variance was achieved ($\Delta\chi^2$ = 46.04 and $p > 0.05$). As the other three market linking items recorded metric invariance, the non-invariance problem of the other two was deemed not a concern for the factor moving forward. Indeed Byrne (2016) showed that by implementing a condition of partial metric invariance, multi group analyses could still continue. Using the CFI value difference to test the significance of the invariance (a more recent and practical approach than the chi-square difference test, according to Byrne, 2014), a cut-off criterion of ΔCFI ≤ 0.01 was applied to verify measurement invariance. In using the CFI difference test (ΔCFI = 0.003) as a further criterion upon which to determine evidence of metric invariance, it was concluded that the factor loadings were operating similarly across low R&D intensity and medium-high intensity industries and any differences between the groups could only be attributed to trait differences.

In addition to the configural and metric invariance tests, a scalar invariance test was also carried out on the measurement intercepts. The scalar invariance implies that the mean of the factors and the level of the underlying items (intercepts) are equal in both groups (Byrne, 2010). This is an important invariance test because it determines whether the intercepts for both groups are largely the same. In other words, a scalar invariance model declares that factor mean differences because the item mean differences (but the item intercepts should still be the same). Where intercepts are statistically different, it would not be possible to determine whether the differences in the factors are as a result of the measurement of the factor, or of the characteristics of the group. This test also uses the chi-square difference test which is available in AMOS. The result showed that there was scalar invariance ($p > 0.05$) indicating that the intercepts for both groups were largely similar and that differences between the R&R intensity groups would be down to trait differences rather than their measurement. Having established configural, metric and scalar invariance of the low R&D intensity and medium-high intensity samples, this study would be able to carry out *post hoc* multiple group analysis in the next chapter.

5.6.4 Model validity and reliability

The construct validity of measures is another area of assessment that typically focusses on the extent to which the data fulfils the requirements of the preconceived concepts. Construct validity is defined as the extent to which an operationalised model

measures the concept it is supposed to measure (Cook & Campbell, 1979). Devellis (2012) posited that validity identifies whether the factor is the underlying cause of the item covariation and is one of the main indicators of the overall quality of a study. Construct validity reveals the extent to which data exhibit evidence of (1) convergent validity, which measures the extent to which different assessment methods agree in their measurement of the same trait; and (2) discriminant validity, which measures the extent to which independent assessment methods diverge in their measurement of different traits. In regard to construct reliability, this was initially measured using Cronbach's Alpha, but further analysis was required at the CFA level. Construct reliability determines the degree of consistency between multiple items of a construct (Hair et al., 2014). Reliability is largely measured by determining internal consistency, which refers to the consistency among the items in a construct scale, and takes into account the extent to which the items are intercorrelated. Construct reliability was established by calculating the composite reliability (CR) (Hair et al. 2014) and was conducted before the validity test.

The composite reliability (CR) measured the internal consistency of the constructs. The CR measured the extent to which measured items represented the latent factors. The formula for the composite reliability is shown below and the minimum threshold score for acceptable reliability is 0.70 the same as the Cronbach's Alpha (Fornell & Larcker, 1981).

$$\mathbf{CR} = \frac{(\text{Sum of standardised loading})^2}{(\text{Sum of standardised loading})^2 + \text{Sum of indicators measurement error}}$$

The constructs returned composite reliability values from 0.88 to 0.96 for information technology, adaptation strategy, past export performance, technology, marketing, market linking and current export performance. The composite reliability indices are all reported under the CR column of Table 5.3 below. The results show that the items were reliable measures of the latent constructs demonstrating internal consistency. Reliability being a necessary but not sufficient condition, the validity of the constructs was also assessed, focusing on the two main types of validity.

Table 5. 3 Validity, reliability and correlation matrix

	CR	AVE	IT	ADPT	PPERF	TECH	MKTG	MKTLK	XPERF
IT	0.90	0.65	**0.80**						
ADPT	0.94	0.76	0.12	**0.87**					
PPERF	0.96	0.81	0.45	0.01	**0.90**				
TECH	0.90	0.62	0.70	0.09	0.45	**0.79**			
MKTG	0.91	0.67	0.78	0.15	0.57	0.76	**0.82**		
MKTLK	0.86	0.55	0.62	0.25	0.35	0.61	0.61	**0.74**	
XPERF	0.93	0.71	0.43	-0.02	0.79	0.48	0.59	0.38	**0.85**

Source: Own elaboration. Note: The square root of the AVE values are marked in bold; IT = information technology; ADPT = Adaptation strategy; PPERF = past export performance; TECH = technology; MKTG = Marketing; MKLK = market linking; XPERF = current export performance

Convergent validity assessed the extent to which items within the same factors or constructs were correlated (Hair et al., 2014). High correlation is an indication that the scale items are measuring their intended concept or factor, notwithstanding issues such as singularities where items correlation could be 1. Convergent validity was assessed using the average variance extracted (AVE) test and it was computed for each factor. AVE measures the percentage of total variance of the data accounted for by each dimension or in other words, the average variance that the latent variable can use to explain all its indicators (Hair et al., 2014). AVE should be higher than 0.50 (Fornell & Larcker, 1981). The formula for the AVE is presented below:

$$\textbf{AVE} = \frac{\text{Sum of squared standardised loading}}{\text{Sum of squared standardised loading + Sum of indicators measurement error}}$$

The AVE values for the latent factors were 0.65 (information technology), 0.76 (adaptation strategy), 0.81 (past export performance), 0.62 (technology), 0.67 (marketing), 0.55 (market linking) and 0.71 (current export performance), which were all above the 0.50 threshold (see Table 5.3 column AVE). Based on convergent validity, all latent variables were converged to acceptable levels. The items or variables were well correlated with each other within their respective factors.

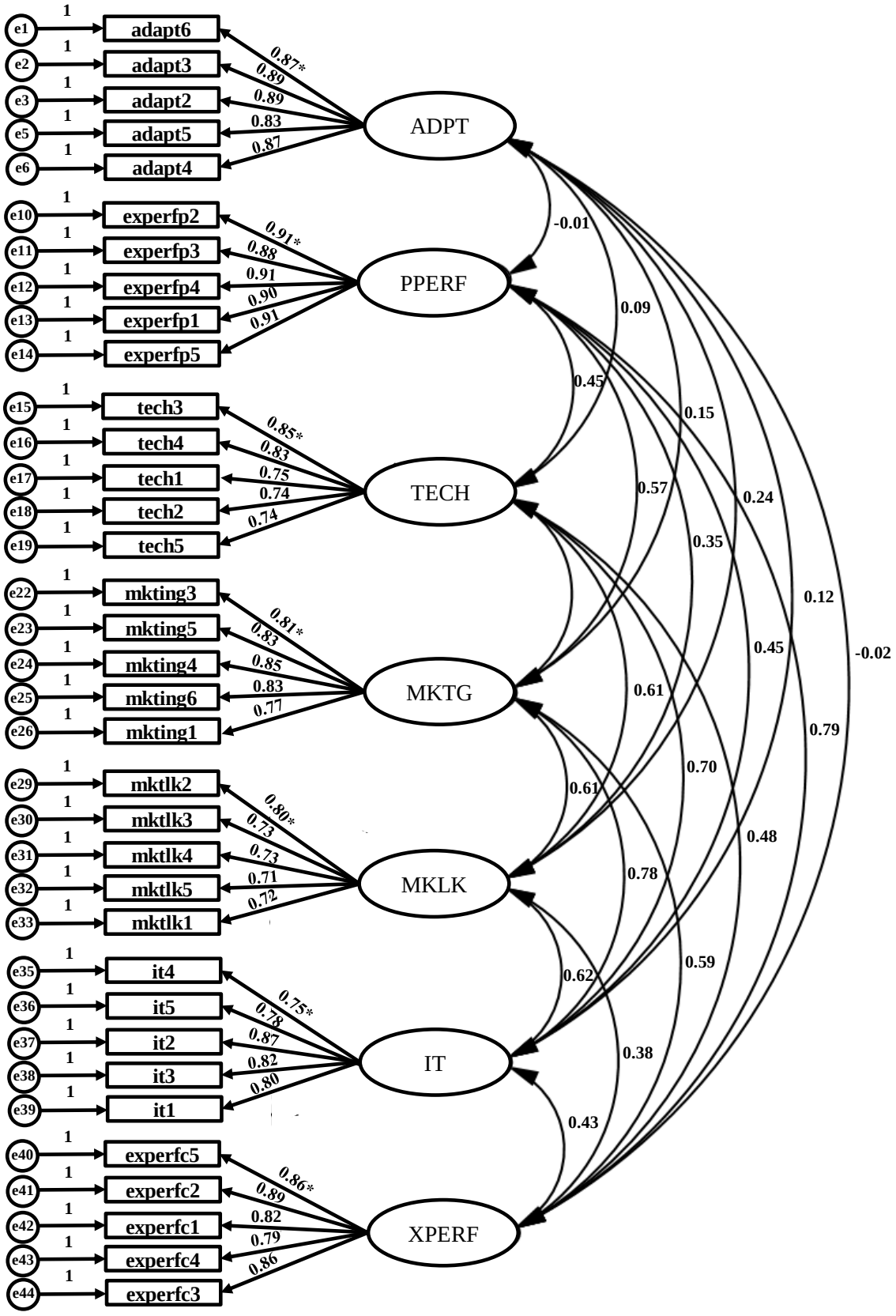
In terms of discriminant validity, evaluating the correlations between the factors proved to be adequate for all. The discriminant validity measures the extent to which two conceptually similar concepts are distinct (Hair et al., 2014). The empirical test compares the factor correlation between measures and the AVE. Looking at the Table 5.3 above (columns IT to XPERF), the square root of the AVE is provided on the diagonal and in bold, and in no case is it lower than the correlation figures, indicating that there is indeed

discriminant validity. This is an important assessment because if there were discriminant validity issues, this would mean that variables are correlated more highly with variables outside of its factor than those within it. It would be unacceptable in a reflective model to have a latent factor providing a better explanation of an item than a different latent factor.

5.6.5 CFA model estimates

Figure 5.1 provides a final summary of the measurement model and contains the standardised loadings and correlation between factors. The standardised loading for all the scale items is high and statistically significant.

Figure 5. 1 Confirmatory factor analysis – seven-factor scale



Source: Own elaboration. Notes: χ^2 (538) = 1071.88, CFI = 0.93, TLI = 0.93, RMSEA = 0.06; 95% C.I. 0.05; Estimator = ML; n = 274; all standardised coefficients are significant ($p < 0.001$) and appear above the associated path; * path constrained to 1 for model identification; IT = information technology; ADPT = adaptation strategy; PPERF = past export performance; TECH = technology; MKTG = marketing; MKLK = market linking; XPERF = current export performance

Table 5.4 also provides a summary of the measurement model and contains the items names, standardised loadings, *t*-values and *p*-value. The t-values above the minimum threshold of 1.96 denotes statistical significance (Hair et al., 2014).

Table 5. 4 First-order confirmatory factor analysis loadings

	Std, β	***t* -value**	***p* -value**
Current export performance			
Export profitability	0.86[a]	--	0.001
Export sales growth	0.89	19.93	0.001
Performance of export venture(s)	0.82	17.09	0.001
Entry to key markets	0.76	16.26	0.001
Export market share	0.86	18.45	0.001
Adaptation strategy			
Distribution channels	0.87[a]	--	0.001
Product(s)	0.89	20.89	0.001
Quality controls	0.89	20.75	0.001
Price	0.83	18.29	0.001
Promotions	0.87	19.96	0.001
Technology capabilities			
New technology development	0.85[a]	--	0.001
Manufacturing processes	0.83	16.69	0.001
New technology acquisition	0.75	14.39	0.001
New product development	0.74	14.16	0.001
Prediction to changes in technology in your industry	0.75	14.35	0.001
Marketing capabilities			
Monitoring competitive products in export markets	0.81[a]	--	0.001
Segmentation and targeting of regional/international markets	0.83	15.88	0.001
Integration of marketing activities	0.85	16.39	0.001
Effectiveness of international (export) pricing programs	0.83	15.67	0.001
Knowledge of international competitors	0.77	14.26	0.001
Market linking capabilities			
Creating and managing durable customer relationships	0.80[a]	--	0.001
Creating durable relationships with your suppliers	0.73	12.43	0.001
Retaining regional/international customers	0.73	12.42	0.001
Creating durable relationships with channel members	0.71	11.92	0.001
Generating knowledge about consumers, competitors and channel members for decision making	0.72	12.17	0.001
Information technology capabilities			
IT systems for external communications	0.75[a]	--	0.001
IT systems for internal communication	0.78	18.01	0.001
IT systems for facilitating cross-functional integrations	0.87	14.47	0.001
IT systems for facilitating market knowledge creation	0.82	13.68	0.001
IT systems for new product development projects	0.81	13.39	0.001
Past export performance			
Export sales growth	0.91[a]	--	0.001
Entry to key markets	0.88	23.00	0.001
Export profitability	0.91	24.61	0.001
Export market share	0.90	24.21	0.001
Performance of export venture(s)	0.91	24.95	0.001

Source: Own elaboration. Notes: $\chi^2_{(538)} = 1071.88$, CFI = 0.93, TLI = 0.93, RMSEA = 0.06; 95% C.I. 0.05; Estimator = ML; n = 274. a path constrained to 1 for model identification and as a result has no *t*-value.

5.6.6 Second order CFA model – *Post hoc analysis*

The multiple group analysis was conducted using an aggregate level for firm performance. As a result, an aggregated factor of firm capabilities was estimated to provide an overall account of firm capabilities. This approach ensured that the complementarity of capabilities factors was also considered when looking at the differences between varying R&D intensity industries. The aggregated firm capabilities factor is also known as a second order CFA. It differs from the first order CFA in that it posits that the collective firm capabilities factor accounts for or explains all variance and covariance rather than the first order factors.

The procedure applied follows Byrne (2010) main assumption that a) response to firm capabilities can be explained by the four first order factors and the one second order factor; b) each observed item has non-zero loadings on each of their first order factor, and zero loadings on the other factors; c) error terms related to each item are uncorrelated; and d) covariation among the four first order factors are all explained by their regression on the second order factor (see Byrne, 2010 pp. 130). Unlike one loading on the first order factor being constrained to 1, in the case of the second order factor, loadings are all freely estimated. Alternatively, the higher order factor variance is constrained to 1, as the main interest of the *post hoc analysis* is the impact of overall firm capabilities on each of the lower level capabilities factors.

The internal reliability of the second order factor was above the minimum necessary to conclude that the first order items were reliably explained by the second order factor (Cronbach's alpha = 0.84). The composite reliability score was also in the acceptable range, returning a score of 0.88. Convergent reliability, as denoted by AVE, returned a minimum score of 0.68 above the recommended 0.50 threshold (see Table 5.6). The square root of the AVE is provided on the diagonal and in bold and in no case, is it lower than the correlation figures, indicating that there is discriminant validity. Specifically, the square root of the firm capabilities factor's (CPB) AVE equals 0.83, which is above its pairwise correlation with past export performance (0.57), adaptation strategy (0.13) and current export performance (0.59).

Table 5. 5 Second-order validity, reliability and correlation matrix

	CR	AVE	**XPERF**	**ADPT**	**PPERF**	**CPB**
XPERF	0.93	0.71	**0.85**			
ADPT	0.94	0.76	-0.02	**0.87**		
PPERF	0.96	0.81	0.79	0.01	**0.90**	
CPB	0.89	0.68	0.59	0.13	0.57	**0.83**

Source: Own elaboration. $\chi^2_{(549)}$ = 1042.10, CFI = 0.94, TLI = 0.93, RMSEA = 0.06; 95% C.I. 0.05; Estimator = ML; n = 274; Note: The square root of the AVE values are marked in bold; XPERF = current export performance; ADPT = Adaptation strategy; PPERF = past export performance; CPB = firm capabilities

Goodness of fit, validity and reliability test procedures were then carried on the model as was done for the first order CFA. The incremental fit indices yielded scores above the 0.90 threshold with CFI = 0.94 and TLI = 0.93. In regard to its absolute fit, the RMSEA was 0.06 which is within the threshold of adequacy, however the chi-square test failed to denote a good fit (χ^2 = 1042.10, df = 549 and $p < 0.001$). In case of the latter, this is not surprising because, as explained earlier in the chapter, chi-squared test is quite sensitive to sample size. The first order factor loading on the second order factor ranged from 0.70 to 0.93, as shown in Table 5.5, and they all were significant as denoted by the t-values which were all above the minimum threshold of 1.96. Note that only the second order loadings are presented in the table below as the other first order item loadings remained unchanged.

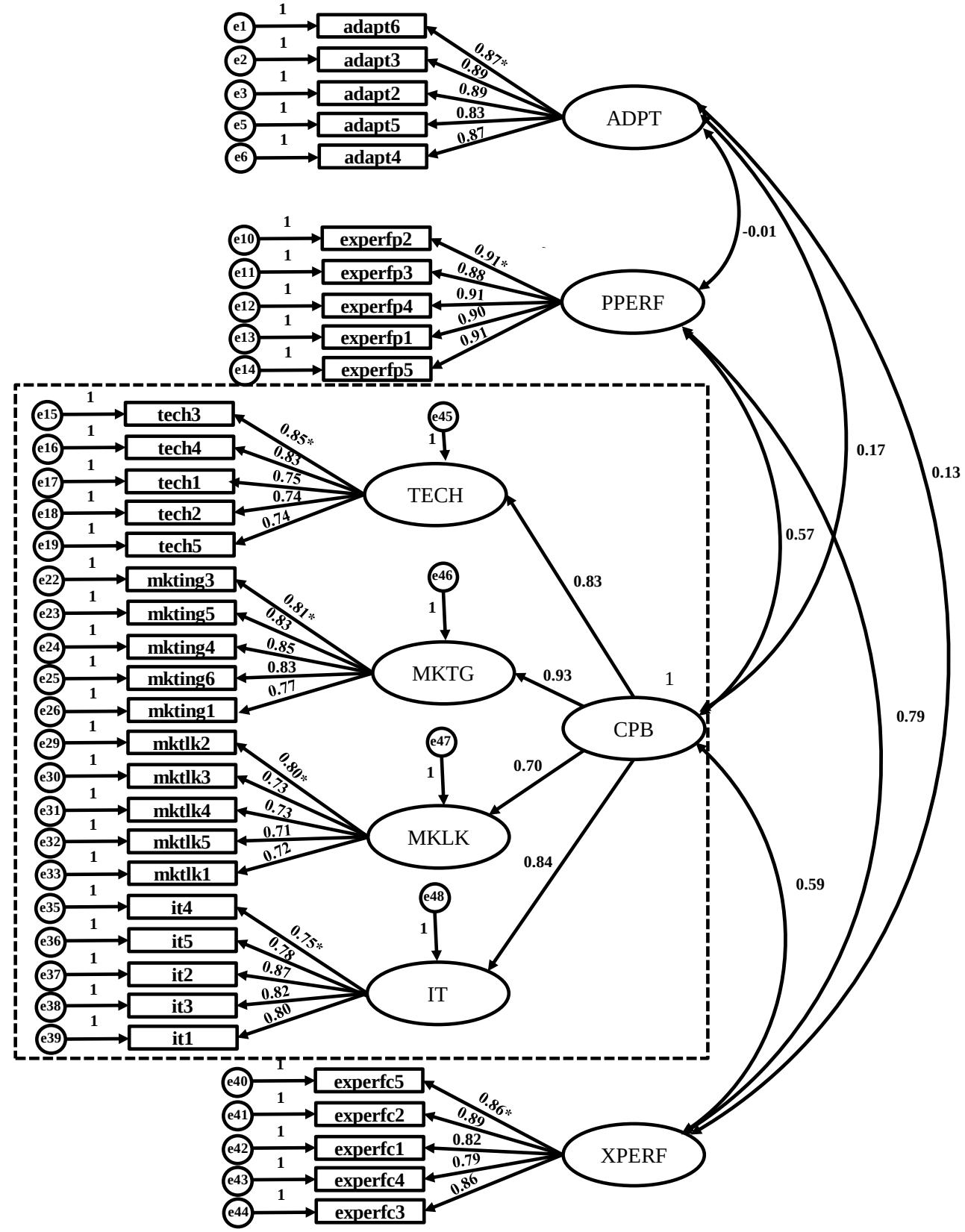
Table 5. 6 Second-order confirmatory factor analysis loadings and construct validity

	Std. second-order loadings	***t* -value**	***p* -value**
FIRM CAPABILITIES			
Technology	0.83	13.23	0.001
Information technology	0.84	11.68	0.001
Market linking	0.70	10.23	0.001
Marketing	0.93	14.21	0.001

Source: Own elaboration. Notes: $\chi^2_{(549)}$ = 1042.10, CFI = 0.94, TLI = 0.93, RMSEA = 0.06; 95% C.I. 0.05; Estimator = ML; n = 274.

The results for the overall second order CFA are presented below in Figure 5.2. The four capabilities factors are aggregated under an overall firm capabilities factor as presented in the dotted box.

Figure 5. 2 Second order confirmatory factor analysis – four-factor scale



Source: Own elaboration. Notes: $\chi^2_{(549)}$ = 1042.10, CFI = 0.94, TLI = 0.93, RMSEA = 0.06; 95% C.I. 0.05; Estimator = ML; n = 274. * path constrained to 1 for model identification. XPERF = current export performance; ADPT = Adaptation strategy; PPERF = past export performance; CPB = firm capabilities.

5.7 Summary

The measurement model or CFA defines the relationship between the observed and unobserved variables in the study. The validated variables were obtained from the extant literature. All variables included in the CFA exhibited excellent internal reliability as determined by their high Cronbach's alpha and composite reliability scores which were greater than the minimum 0.70 threshold. The CFA contained reflective rather than formative variables meaning that the latent factors cause the underlying variables. On screening the data, normality test revealed that the data were normally distributed with all skewness and kurtosis scores falling within their minimum and maximum thresholds. As the variables were measured on a 7-point Likert scale, there was little concern for outlier cases. However, using the outlier labelling rule, one case was removed because the informant was found to be unengaged with the process providing the same response throughout whilst responses fell outside the rejection threshold of the outlier labelling rule. In the initial phases of the analysis all observed items returned excellent internal reliability with regard to their latent factors.

The baseline measurement model with all the scale items included returned reasonable goodness of fit scores with all goodness of fit measures falling within their minimum threshold. The theorised model contained strong relationships between the variables. In order to strengthen the goodness of fit measures even further, the model was re-specified using results from the modification indices, standardised residual covariance and factor loading scores. Following this process of re-specification, the model yielded much stronger goodness of fit scores overall with all constructs or latent factors maintaining at least four observed variables. In preparation for a *post hoc* multiple group analysis during the SEM phase, invariance tests were carried out which revealed that the models for (1) low R&D Intensity industries, and (2) medium-high R&D Intensity industries were invariant, meaning differences in the findings between these two groups of firms were as a result of trait differences rather than measurement ones. The CFA also returned excellent convergent validity, discriminant validity and composite reliability. Additionally, the subsequent second order CFA model which estimated an aggregated firm capabilities dimension returned excellent goodness of fit as well as excellent reliability and validity scores. Overall the measurement model fulfilled all the necessary requirements for robust confirmatory factor analysis and provided evidence to conclude that there are strong links between the observed and unobserved variables as posited in

the conceptual framework, and, in turn, that the output of the CFA is well suited for the structural analysis and hypothesis testing that follow.

CHAPTER 6. HYPOTHESIS TESTING

This chapter presents the findings of the second stage of the two stage SEM approach. In advance of the analysis, the conceptual model is reintroduced, reiterating the main thrust of the study by indicating that past export performance, firm capabilities and adaptation strategy interact to provide some explanation of current export performance. The conceptual model is indeed the basis of the structural model and ultimately posits the theory that higher levels of satisfaction with past export performance drives current year export performance. The effects are direct while others are indirect through firm capabilities. The lessons learned from this is that past export performance mat help improve firm capabilities, which in turn positively influences current export performance. However, the effects of firm capabilities on existing export performance would be influenced positively or negatively by a firm's adaptation strategy.

The structural model is used to test all the study hypotheses. Before this analysis was conducted, it was important to check for any influential outlier observations and evidence of multicollinearity. With regards to influential outlier observations tests, one case produced some unusual but comprehensible responses so it was retained for analysis even though it could have been removed. There was little evidence of multicollinearity using moderate measurement test thresholds. Several control variables were introduced and used to control for the effects that some other possible significant variables could have had on the results. The controls were: types of markets (emerging/developed), number of export markets, international experience, firm size and degree of internationalisation. Once the model was set up in AMOS, its appropriateness as a model to adequately test the hypotheses was determined by reviewing a series of global to local tests; that is, checking for overall goodness of fit, R squared and then *p*-values. In all cases these measures were deemed adequate and the results for the hypotheses were accepted. Where hypotheses were rejected, further post-hoc statistical power tests were carried out to determine the chances of deriving a wrong result given the dataset.

Most hypotheses were supported using the overall dataset with some variation in the results following the *post hoc* multiple group analysis. More specifically, past export performance significantly and positively influenced both firm capabilities and current export performance. Marketing capabilities returned positive and significant influenced current export performance as posited. Conversely market linking and technology capabilities had no significant impact on the export performance of Caribbean Manufacturers. Information technology capabilities returned a negative but significant

impact on export performance. The relationship between a firm's capabilities and current export performance was significantly moderated by adaptation strategy. The indirect effect of past export performance on export performance through firm capabilities was also confirmed for marketing and information technology capabilities. *Post hoc* analysis revealed that firm capabilities as an aggregate variable also positively and significantly influenced current export performance. The multiple group results show that the moderating effects of adaptation strategy on overall firm capabilities and current export performance is true only for firms that operate in medium-high R&D intensity industries, rather than those operating in low R&D intensity industries. Market type had a significant controlling effect on current export performance.

6.1 Multivariate Assumptions

6.1.1 Influential observations

In advance of developing the structural model and running tests on the study hypotheses, it was important to note that regression summary statistics such as R squared and beta values (regression coefficients) can present distorted pictures of a dataset. One of the many causes for this lies in the fact that good data points could be mixed with observation that are inappropriate as well as influential. Influential observations are defined as the category of data points that have an adverse impact on the estimates in a regression model, and these include outliers and/or leverage points (Bates, Holton & Burnett, 1999). By ignoring these data points, results may differ significantly in the predictor values and/or return extreme values for the criterion variables (Hair et al., 2014). As influential observations can affect the slope and intercept of the regression equation, they can have a detrimental effect on the extent to which the predicative accuracy of the model is maximised. In other words, if the influential observation is grossly unrepresentative of the population, its inclusion in the data can reduce the explanatory capacity of the regression model. Whilst outliers may be easily identifiable, the multivariate influential observations require more specialised diagnostic methods (Hair et al., 2014). The Cook's distance test and the studentised deleted residuals (SDR) analysis were used to diagnose whether the dataset contained influential observations. If influential observations are identified and are deemed to possibly have a negative impact on confidence in the regression estimates, they could be deleted.

The Cook's distance test was carried out using SPSS in which the program calculated a series of scores. The Cook's distance or Cook's D helps judge the contribution of each data point to the determination of the least squares estimate of the

parameter vector in full rank linear regression model (Cook, 1977). Cook's D values greater than one denote that data points have substantial influence on the estimated regression coefficients. However, in the absence of any score greater than one, scores that are substantially greater than the average score would be marked for further investigation (Hair et al., 2014). In order to visually identify outlying cases, the Cook's scores were plotted on a scatter diagram against respondent ID number. Two data points had Cook's scores (0.26 and 0.11) that were substantially higher than the Cook's mean (0.01) and were both marked for further investigation. The studentised deleted residuals were calculated, which measured how much difference eliminating a case makes in its own prediction. Scores falling outside the threshold +/- 1.96 meant that these data points were subject to further assessment. Fifteen items fell outside the threshold but two data points (7.0 and 3.8 scores) fell much further off. In both diagnostic tests, one data point (0.26 and 7.0) returned scores that were inconsistent with the general pattern. As the second highest Cook's value did not coincide with the second highest SDR score and in both cases had reasonable scores of the others, they were not considered for further investigation.

The one data point with relatively high Cook's D and SDR was assessed with great caution and the judgement to delete the data point was not straightforward. As the survey was online, the influential case would not have been as a result of measurement error, data entry error, or indeed inappropriate experimental conditions. Under these circumstances the case would have had to be deleted or corrected. On closer scrutiny the respondents appear to have taken an unusual position in their responses. So, for example, the respondent indicated that their firm was highly competitive compared with their main competitors but was not satisfied with their export performance even though they were more satisfied now than three years ago. Yes, the position can be viewed as unusual, but it was plausible, and as a result the data point was retained. Indeed, some researchers may indicate that the data point should have been deleted whilst others would say the contrary, indicating that it could have been a statistical sleight of hand (Bates et al., 1999). In any event extreme caution was born in this study and the data point was retained; on its own it should not have that much of an influence on a sample size of 274. Certainly, where any non-significant tests were made significant (which is not the case) as a result of its exclusion would have also been a cause of concern.

6.1.2 Multicollinearity

Multicollinearity measures the extent to which each independent variable is explained by the set of other independent variables (Hair et al., 2014). This means that each independent variable becomes a dependent variable and is regressed against the remaining independent variables. This shows the extent to which the variance of the independent variables is explained in the dependent variable are overlapping with each other and thus not explained by the unique variance in the dependent variable. This is largely assessed using a tolerance test, and its inverse, the variance inflation factor (VIF) (O'Brien, 1999). Where multicollinearity is present, a possible solution would be to drop one of the problematic variables or use more sophisticated analysis such as factor analysis converting the offending variables into a factored variable. Both the multicollinearity diagnostic tests were calculated by running a multivariate regression in SPSS. In the case of VIF the minimum threshold varies but would be expected to be less 3, 5 or 10 (O'Brien, 1999). In the case of levels of tolerance, a value less than 0.10 is a strong indication of multicollinearity (Hair et al., 2014). Multicollinearity tests were carried out for elements of the first order factors model and the *post hoc* second order factors. The results for both CFA returned little or no multicollinearity concern between the latent variables, with VIF scores falling below the 5 threshold (except the marketing factor being a little over) whilst at the same time falling above the minimum tolerance threshold of 0.10. Indeed, the lowest tolerance score was 0.19 and 0.58 (first order and second models respectively) and VIF, its inverse, was 5.21 and 1.73 respectively. The results for both the first order and second order factors suggest that no constructs or items should be modified.

6.2 Control variables

As noted in the conceptual framework, five control variables were considered while testing the hypotheses: firm size, international experience, number of export markets, market types and degree of internationalisation. Control variables are held constant to assess the relationship between the independent and dependent variables; that is characteristics that are not included in the analysis but for which differences are expected or proposed (Hair et al., 2014). Control variables are included in the model to exclude them as an alternative explanation while testing the hypotheses. Firm size is used extensively by researchers as a control variable (e.g., Brouthers, O'Donnell, & Keig, 2013, He & Wei 2013 and Lisboa, Skarmeas & Lages, 2013) and as a possible control for economies of scale. Whilst size can be measured by overall turnover, in this case it was measured by the number of employees, in line with the studies referenced here.

International experience is another measure that is frequently used as a control variable (e.g., Beleska-Spasova, Glaister, & Stride, 2012 and Brouthers, Nakos, Hadjimarcou, & Brouthers, 2009) as it can control for extra resources and capabilities that experienced exporting firms may have. Experience was measured by the number of years that the firms had been involved in exporting products outside its home country, and was measured by asking informants the length of time they have been involved in regional/international trade.

Several market-related variables were also used as controls. It was important to ensure that these items were accounted for as the hypotheses were tested. A number of export markets aimed to control for firms' exposure or involvement in few or many markets (e.g., He & Wei, 2013; Lages, Jap, & Griffith, 2008) as this would again control for extra resources and the capabilities that more diversely experienced exporting firms might have. The variable was measured by asking respondents to provide the number of countries to which they export products. Market type, as evaluated by the number of firms operating in established markets (e.g., the U.S., Canada and the European Union) and/or emerging markets (e.g., Central and South America) was included as a control variable, something also done by Sousa & Bradley (2008) and similar to Brouthers, O'Donnell, & Keig (2013) who evaluated the ratio of export to developed markets. Market type would help control for the varying dynamism that exists between developed and emerging markets. Respondents were asked to indicate the location of their export markets. The results were then recoded into emerging and developed markets. The degree of internationalisation was measured by requesting that the informant provided information on their firm's ratio of export to total sales. This was included as a control variable because it is also associated with economies of scales. Magnusson et al. (2013) used degree of internationalisation as a control variable, and found it to have a positive link to export performance.

6.3 Procedure for the structural model

The aim of the structural model is to assess how well it reproduces the observed covariance matrix, and the direction and significance of the hypothesised paths. Models are supported if they produce a good fit and the hypothesised paths are significant and are in the direction stated. Models must meet a few global to local tests for hypotheses to be supported. The local test dictates whether a hypothesis is supported but for this to have any meaning it must first pass all global tests. Indeed, the global test is the first necessity. The local test would be denoted by significant *p*-values, then the global test would be

denoted by overall goodness of fit scores and R squared values. So, for example, a hypothesis may return a significant value but if the model is poorly fitted or R squares are very low the findings could be viewed as meaningless. At every stage of the process that follows, global to local test results will be assessed and provided. Hair et al., (2014) noted that good fit may not necessarily mean that some alternative model may fit better. In that case, further verification may be necessary to ensure nomological validity, which they also coined as a theoretical plausibility test. That said, where paths weights are significant but in the wrong direction, the hypotheses would be deemed as unsupported.

The estimation of the structural regression weights is ascertained using the same process used in the CFA models. The key distinction between the two models is that in the case of the structural model all the latent factors are unrelated to each other. The structural model replaces correlation with dependence relationships and in doing so, the concepts of direct and indirect effects can be introduced and assessed (Hair et al., 2014). Two structural models were developed: the first model used results from the first order CFA model to test the direct relationship between the individual aspects of firm capabilities, past export performance and current export performance. It also was used to test the indirect relationships. The second model was a second order model used to conduct the *post hoc* multiple group analysis. The models and their iterations were evaluated using the following goodness-of-fit statistics: $p > 0.05$, TFI > 0.90, CFI > 0.90, RMSEA < 0.08 the same as those used for the CFA, bearing in mind the sensitivity of chi-square and CFI to large sample sizes. The modification indices were reviewed where possible to improve the overall fit of the model. Only modifications with theoretical plausibility and causing significant changes to the fitness measures were carried out. In line with the global to local test assumption made above, R squared results for all dependent variables were assessed with returns higher than 0.40 being viewed as ideal (O'Brien, 2007) but not necessarily critical (Sousa et al., 2008).

6.4 Results of structural model

6.4.1 Direct path estimates

The results of the estimated structural model using the first order CFA measurement results are presented in Table 6.1. In advance of looking at whether the paths or hypotheses were supported or not, global to local goodness of fit calculations were carried out to assess the appropriateness of the model. The global fit statistics returned excellent goodness of fit results: $\chi^2 = 30.75$ ($p < 0.05$) with 19 degrees of

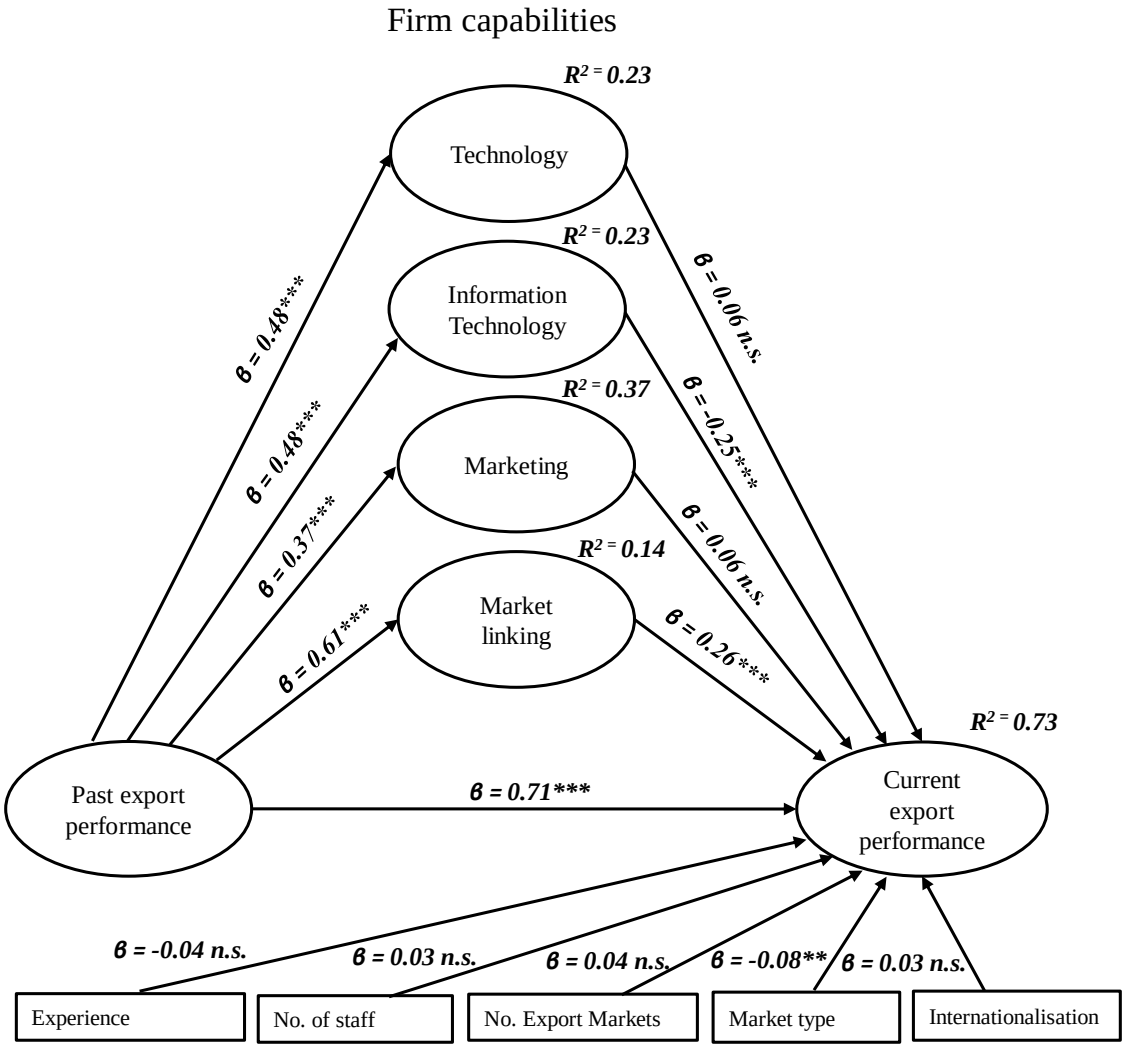
freedom[10]; CFI = 0.99; TLI = 0.98; and RMSEA = 0.05. The R squared, which are provided for all dependent variables, scores were strong; current export performance (R^2 = 0.73), technology capabilities (R^2 = 0.23), information technology capabilities (R^2 = 0.23), marketing capabilities (R^2 = 0.37) and market linking capabilities (R^2 = 0.14). Both global tests indicated that the structural model was strong enough to give an accurate indication to the significance of the relationships outlined in this study. The model was also controlled for potential significant variations that may arise due to differences in market type, firm size, international experience, number of export markets and degree of internationalisation. The calculations showed that export market type significantly controlled current export performance (β = -0.08; t = -2.22; $p < 0.05$), while the other control variables did not have a significant influence on the performance of Caribbean manufacturers. A *post-hoc* statistical power test returned an observed statistical power of 1, indicating that if any significant effects existed in the data, there was a 100% chance that it would have been captured by the conceptual model (Sober, 2017).

Six of the nine anticipated relationships were supported by the data as anticipated with information technology capabilities returning a significant result but in the opposite direction to that which was proposed. The first directional hypothesis anticipated a positive influence of past export performance on current year export performance. The calculations confirmed the positive relationship (β = 0.71; t = 17.32; $p < 0.001$), leading to the confirmation of H1. Similarly, H2a – H2d anticipated a positive influence of past export performance on firms' technology, information technology, marketing and market linking capabilities. These effects were detected to be statistically significant (β = 0.48; t = 8.99; $p < 0.001$); (β = 0.48; t = 8.92; $p < 0.001$); and (β = 0.61; t = 12.59; $p < 0.001$) respectively, hence supporting H2a, H2b, H2c and H2d (see Table 6.1). H3a – H3d also anticipated firm capabilities having a positive influence on current export performance. The calculations could only confirm the positive relationship between marketing capabilities and current export performance ((β = 0.26; t = 3.61; $p < 0.001$), hence providing support for H3c. The technology and market linking capabilities paths to current export performance were unsupported, indicating that, for this sample, these aspects of firm capabilities on their own were not significant drivers of the current export performance of Caribbean manufacturers. H3a and H3d were therefore not supported by the data. Instead of a positive link between information technology capabilities and

[10] The chi square and degree of freedom scores are low because imputed latent variables scores were used in the SEM.

current export performance, the calculations returned a significant but negative link between both variables, providing no support for H3b. Figure 6.1 and Table 6.1 reports the results of hypothesis testing

Figure 6. 1 Model of past export performance, firm capabilities and current export performance



Notes: $\chi 2$ (19) = 30.76, CFI = 0.99, TLI = 0.98, RMSEA = 0.05; 95% C.I. 0.05; Estimator = ML; n = 274. *** *p*-value < 0.001, ** *p*-value < 0.05, n.s. = Not significant.

Table 6. 1 Individual direct path analysis

Hypothesised path			**Std, β**	***t*-value**	***p*-value**
H1. Past export Performance	→	Current export Performance	0.71	17.32	0.001
H2a. Past export Performance	→	Technology	0.48	8.99	0.001
H2b. Past export Performance	→	IT	0.48	8.92	0.001
H2c. Past export Performance	→	Market linking	0.37	6.63	0.000
H2d. Past export Performance	→	Marketing	0.61	12.59	0.001
H3a. Technology capabilities	→	Current export Performance	0.06	0.94	0.347
H3b. IT capabilities	→	Current export Performance	-0.25	-2.96	0.003
H3c. Marketing capabilities	→	Current export Performance	0.26	3.61	0.001
H3d. Market linking capabilities	→	Current export Performance	0.06	1.24	0.215
		Control variables			
Market type	→	Current export Performance	-0.08	-2.22	0.027
Number of staff	→	Current export Performance	0.03	0.80	0.424
Experience	→	Current export Performance	-0.04	-1.03	0.305
Number of export markets	→	Current export Performance	0.04	1.11	0.269
Internationalisation	→	Current export Performance	0.03	0.73	0.463

Source: Own elaboration. Notes: $\chi^2_{(19)}$ = 30.76, CFI = 0.99, TLI = 0.98, RMSEA = 0.05; 95% C.I. 0.05; Estimator = ML; n = 274.

6.4.2 Indirect path estimates

The conceptual model posited that aspects of firm capabilities mediates the effect of past export performance on current export performance. Firms learn from past experiences which influence their commitment to export-related activities, which in turn influences current year performance. Mediation analysis is an attempt to determine causation, that is, a mechanism through which lessons learnt from past export performance influences current export performance through aspects of firm capabilities (see Hayes, 2013). As noted earlier in this study, three types of mediation approach exist: partial, full or indirect (Barron & Kenny, 1983). More recently, mediation is viewed less as a graded issue but rather as a binary one in determining whether there is a significant indirect effect between variables (MacKinnon et al., 2015). In order to measure this indirect effect, researchers use an approach called bootstrapping, which is a resampling method used to construct a confidence interval for the indirect effect, AxB (Mackinnon et al., 2015). Multiple subsamples of the same size of the parent sample are drawn randomly from this population which provide the data for the empirical investigation of the variability of parameter estimates and indices of fit (Byrne, 2010). The significant indirect effect approach was used in this study to determine indirect effects of past export performance on current export performance through firm capabilities.

The indirect or mediation analysis was conducted in the statistical programme AMOS with some aspects of the analysis being conducted with plugins developed by Gaskin and Lim (2018). The bootstrap resampling limit was set at 2,000 iterations. Note that no consensus on the number of iterations for bootstrapping exists, so a 2,000 limit was used for this study based on best practice in the international business study (Sousa et al., 2008; Ong, 2014; Gaskin & Lim, 2018). The bias-corrected confidence interval was set at 95%. Bias correction attempts to reduce any bias of a biased estimator by estimating the bias of an estimate and then use it to correct the biased estimate (Karlsson, 2006). The results of the analysis yielded the following goodness of fit scores: $\chi^2 = 30.76$, $p > 0.05$; CFI = 0.99; TFI = 0.98; and RMSEA = 0.05. These results suggest an excellent model fit for the purpose of conducting mediation analysis. Table 6.2 presents the results of indirect effects. Unstandardised coefficients are used for the mediation and moderation results as standardised coefficients do not make a comparison of group means and relative indirect effects straightforwardly (Hayes, 2017; Baguley, 2009; Kim & Mueller, 1976). The use of unstandardised coefficient for reporting mediation and moderation results was also noticed in the literature review for this dissertation and that of Sousa et al., 2008.

The result indicates that the effects of past export performance on current export performance in the short term is only mediated by marketing capabilities as anticipated, and hence only providing support for H4c. The effects of past export performance and current export performance was also moderated by information technology capabilities, but it was a negative mediation rather than a positive one as was anticipated and as a result H4b was not supported. H4a and H4d were also rejected by the calculations as shown in Table 6.2 below. Note that indirect standardised loadings or estimates tend to be small figures/numbers, as they are the products of the multiplication of two decimal numbers.

Table 6. 2 Indirect path estimates

Indirect Path	**Indirect unst. β**	**Lower**	**Upper**	***p*-value**
H4a. Past Performance → Technology → Export performance	0.03	-0.02	0.08	0.403
H4b. Past performance → Information technology → Export performance	-0.09	-0.14	-0.03	0.010
H4c. Past performance → Marketing → Export performance	0.16	0.08	0.23	0.001
H4d. past performance → market linking → Export performance	0.02	-0.01	0.06	0.213

Source: Own elaboration. Notes: $\chi^2_{(19)} = 30.76$, CFI = 0.99, TLI = 0.98, RMSEA = 0.05; 95% C.I. 0.05; Estimator = ML; n = 274.

6.4.3 Interaction path estimates

The relationship between firm capabilities and current export performance was posited as being moderated by firms' adaptation strategy. The interaction or moderation effect is one in which a third of independent variable causes the relationship between a dependent and independent variable pair to change, depending on the values of the interaction of moderator variable (Hair et al., 2014). The interaction effect is described as the joint effect of two predictor variables in addition to the individual main effect. Moderation or interaction analysis tend to use a confidence interval for testing hypotheses of 100 (1 - 2α) confidence interval (Steiger, 2004). Steiger indicated that researchers should also use a minimum of 90% confidence interval instead of the traditional 95% confidence interval. He argued that the estimated effect cannot be small in both directions, so the confidence coefficient should be relaxed to provide the same amount of power that would be obtained with a one-sided test. Additionally, the dependent and independent variables would need to be measured on a continuous scale. As there were four moderation variables in this study, the variables were introduced to the overall model one at time instead of together (Byrne, 2010; Czarnecka & Schivinski, 2019). Then two way interactions tests were carried out to determine whether adaptation strategy yielded superior current export performance when aspects of firm capabilities were low, rather than when they were high (see Gaskin & Lim, 2018; Dawson, 2014). Analysis was conducted in AMOS and again results were controlled for possible significant variations by market type, firm size, international experience, number of export markets and degree of internationalisation.

In advance of calculating the moderating impact of adaptation strategy on aspects of firm capabilities, the moderation analysis had to a) introduce the adaptation strategy variables to the structural model; b) all variables had to be standardised; c) the interaction variables calculated by multiplying the standardised firm capabilities variables with the adaptation strategy variable; and d) the interaction effect was plotted using an Excel template developed by Gaskin et al 2018. The new SEM models which included the adaptation strategy and interaction variables returned the following goodness of fit results: Marketing: $\chi^2_{(25)} = 48.96$, $p < 0.05$; CFI = 0.99; TFI = 0.95; and RMSEA = 0.06; Market linking: $\chi^2_{(25)} = 53.53$, $p < 0.05$; CFI = 0.98; TFI = 0.94; and RMSEA = 0.06; Information technology: $\chi^2_{(25)} = 50.70$, $p < 0.05$; CFI = 0.98; TFI = 0.95; and RMSEA = 0.06; and Technology: $\chi^2_{(25)} = 48.05$, $p < 0.05$; CFI = 0.98; TFI = 0.96; and RMSEA = 0.06. Again, the goodness of fit results were excellent at the global level. The R squared

scores for the dependent variables in the models remained high with marketing capabilities scoring an $R^2 = 0.37$; market linking $R^2 = 0.15$; information technology $R^2 = 0.23$; and technology $R^2 = 0.23$ and current export performance $R^2 = 0.74$. At local level, the link between adaptation strategy and current export performance was negative and significant (β = -0.10; t = -2.79; $p < 0.05$) indicating that where current export performance is poor, firms adapt their practices.

It was anticipated that the effects of marketing, market linking and technology capabilities on current export performance were moderated by adaptation strategy, such that the effects on current export performance were stronger when aspects of firm capabilities were low than when they were high, controlling for market type, international experience, firm size, number of export markets and degree of internationalisation. Table 6.3 shows that H5a, H5c, and H5d were supported: (H5a) (unst. $\beta = 0.10$, $t = 2.91$, $p < 0.05$); (H5c) (unst. $\beta = 0.09$, $t = 2.61$, $p < 0.05$); and (H5d) (unst. $\beta = 0.07$, $t = 2.22$, $p < 0.05$). Conversely, adaptation strategy dampens the negative impact of information technology capabilities on current export performance again controlling for market type, international experience, firm size, number of export markets and degree of internationalisation: (H5b) (unst. $\beta = 0.08$, $t = 2.41$, $p < 0.05$) (see Table 6.3 below). Hence, H5b were also supported. The result also shows that adaptation strategy has an inverse relationship with current export performance. This means when current export performance is low, adaptation strategy would be high. Note that adaptation strategy links to current export performance was not included as a hypothesis but that relationship had to be included in the structural model, for stability reasons.

Table 6. 3 Interaction path estimates

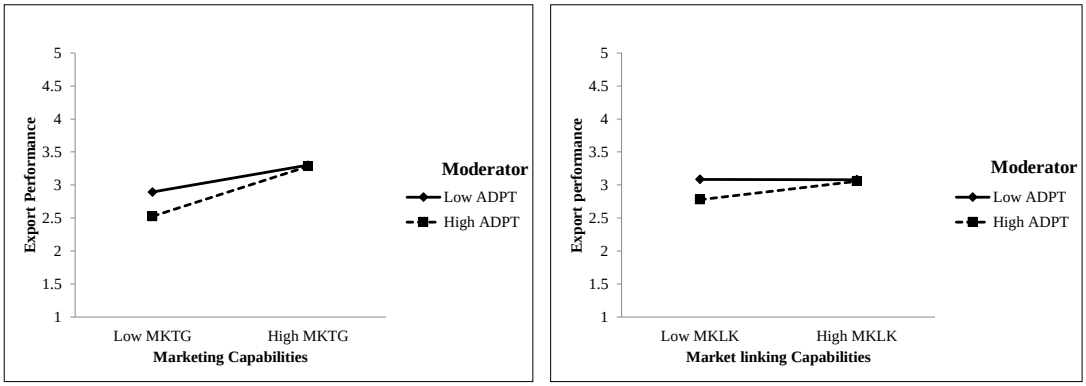
Hypothesised path	**Unst. β**	***t*-value**	***p*-value**
H5a. Adaptation | Technology → Export performance	0.10	2.91	0.004
H5b. Adaptation | Information Technology → Export performance	0.08	2.41	0.016
H5c. Adaptation | Marketing → Export performance	0.09	2.61	0.009
H5d. Adaptation | Market linking → Export performance	0.07	2.22	0.026
Direct effects derived from the moderation analysis			
Adaptation → Export performance	-0.10	-2.79	0.005

Source: Own elaboration. Notes: 2,000 bootstraps; Akaike (AIC) = 206.96; 211.53; 208.70; 206.05. Bayesian (BCC) = 215.50; 220.07; 217.24; 214.59. 30.76. Estimator = ML; n = 274.

The moderation analysis outcomes are also graphically presented in figure 6.1 and Figure 6.2 below. The chart on the left of Figure 6.1 shows that while marketing capabilities have a positive and significant impact on firms' current export performance,

when marketing capabilities are low, adaptation strengthens the positive impact on current export performance. In the case of market linking capabilities where a positive but non-significant effect on export performance was returned, firms' adaptation strategy also significantly strengthened that relationship with current export performance when market linking capabilities are low.

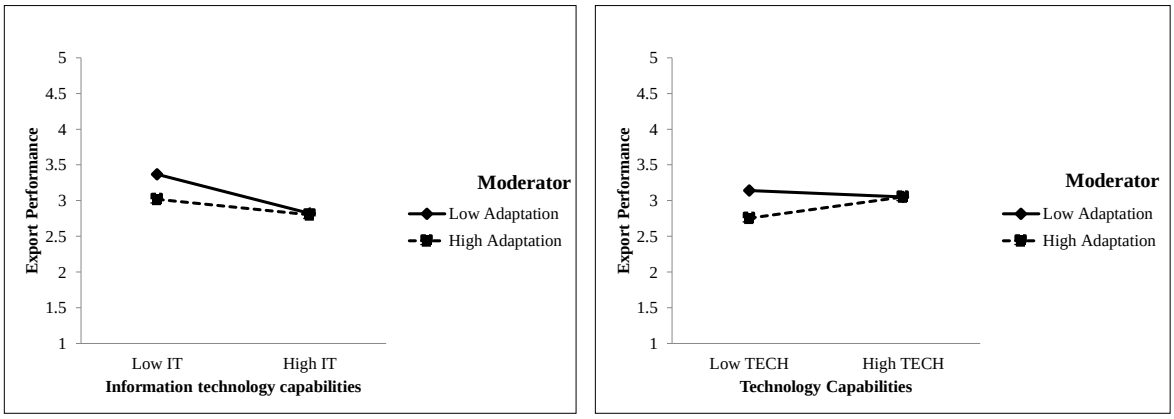
Figure 6. 2 Moderation analysis – marketing and market linking capabilities



Source: Own elaboration. MKTG = Marketing; MKLK = market linking; ADPT = adaptation strategy; XPERF = current export performance.

Figure 6.2 graphically presents the results for the moderating effects of adaptation strategy on information technology and technology capabilities. Information technology capabilities have a negative but significant effect on current export performance and this negative effect is dampened or lessened by firms' adaptation strategy as shown in the chart on the left. Similar to the case of market linking capabilities, technology capabilities have a positive but non-significant impact on current export performance. That notwithstanding, adaptation strategy significantly strengthens that relationship on current export performance when technology capabilities are low.

Figure 6. 3 Moderation analysis– information technology and technology capabilities



Source: Own elaboration. IT = information technology; TECH = technology; ADPT = adaptation strategy; XPERF = current export performance.

6.4.4 *Post hoc* aggregated path analysis

The second order CFA was calculated to measure the effects of past export performance on aggregated firm capabilities. The global fit statistics were carried out, which indicated that the goodness of fit measures was excellent with a $\chi^2_{(10)} = 12.10$ ($p > 0.05$) with 10 degrees of freedom[11]. The CFI = 0.99, TLI = 0.98, and RMSEA = 0.04. The R squared scores were strong overall, with current export performance ($R^2 = 0.72$) and firm capabilities ($R^2 = 0.41$). Controlling for market type, degree of internationalisation, international experience, firm size and number of export markets, the three overall estimated paths returned significant results. More specifically, past export performance has a significant impact on aggregated firm capabilities ($\beta = 0.63$; $t = 13.33$; $p < 0.01$); and current export performance ($\beta = 0.73$; $t = 17.52$; $p < 0.01$). In turn, aggregated firm capabilities returned a significant impact on current export performance ($\beta = 0.17$; $t = 4$; $p < 0.01$) notwithstanding the non-significant impacts of market linking and technology capabilities on current export performance and the negative impact of information technology capabilities on same. The effects of past export performance on current year export performance in the short term is also mediated by aggregated firm capabilities (unst. $\beta = 0.12$; $p < 0.05$; confidence interval = 0.07 to 0.17). The type and number of export markets acted as significant control variables of current export performance. Conversely, international experience, degree of internationalisation and firm size did not have a significant impact on current export performance.

Table 6. 4 Aggregated path analysis

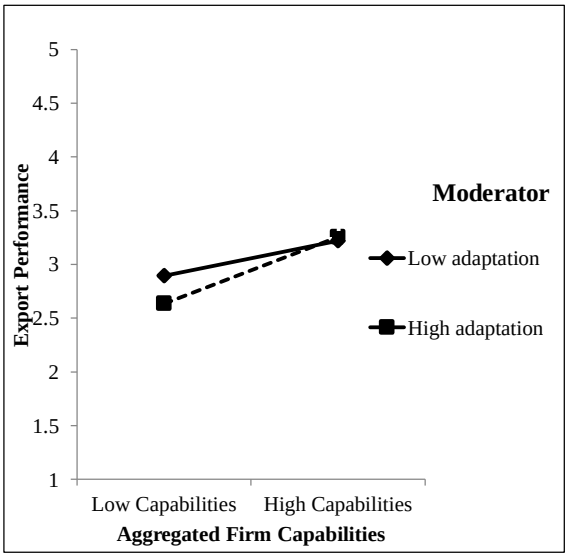
Hypothesised paths			**Std, β**	***t*-value**	***p*-value**
Past export performance	→	Aggregated firm capabilities	0.63	13.25	0.001
Past export performance	→	Current export performance	0.70	16.72	0.001
Aggregated firm capabilities	→	Current export performance	0.20	4.76	0.001
		Control Variables			
Market type	→	Current export performance	-0.07	-2.02	0.043
Number of staff	→	Current export performance	0.03	0.75	0.455
Experience	→	Current export performance	-0.04	-0.98	0.326
Number of markets	→	Current export performance	0.04	1.12	0.263
Internationalisation	→	Current export performance	0.04	1.06	0.289

Source: Own elaboration. Notes: $\chi^2_{(10)} = 12.1$, CFI = 0.994, TLI = 0.98, RMSEA = 0.04; 95% C.I. 0.05; Estimator = ML; n = 274.

[11] The degrees of freedom are low because imputed or unobserved data were used for the aggregated firm capabilities scores.

Post hoc the moderating effect of adaptation strategy on the relationship between aggregated firm capabilities and current export performance was also determined. The goodness of fit results were excellent with $\chi^2_{(10)} = 15.9$, $p > 0.05$; CFI = 0.99; TFI = 0.97; and RMSEA = 0.04. The R squared scores for the dependent variables in the model remain high with the aggregated firm capabilities score of $R^2 = 0.46$ and current export performance $R^2 = 0.73$. At local level, the link between adaptation strategy and current export performance remained negative and significant. The interaction variable of adaptation strategy and aggregated firm capabilities returned a significant and positive impact on current export performance (unst. $\beta = 0.07$; $t = 1.75$; $p < 0.10$). Figure 6.3 illustrates that adaptation strategy strengthens the positive relationship that exists between aggregated firm capabilities and current export performance when controlled for market type, international experience, firm size, number of export markets and degree of internationalisation.

Figure 6. 4 Aggregated capabilities and adaptation strategy interaction with export performance



6.4.5 *Post hoc* multiple group comparisons

Theoretically this study is positioned in the resource-based view of the firm. Implicit in this paradigm is an acceptance that firms are heterogeneous, and that advantage is attained through the differences that exist between firms. The *post hoc* analysis presented in this study looked to explore possible differences between firms that operate in industries of varying levels of R&D intensity which is directly linked to organisational learning paradigm adopted in this study. The *post hoc* analysis determined whether the R&D intensity of industries had a bearing on the conceptual model used in this study. To that end, *post hoc* firms were placed in two R&D intensity groups: i) low

R&D intensity industries which contain firms that have very limited perceived investment in research and development; and ii) medium-high R&D intensity industries, with industries that tended to have moderate to high levels of investment (OECD, 2012; see appendix 1). Note that the CFA analysis determined that the model was invariant or equivalent for these two groups of firms, meaning that any differences between the groups would be as a result of trait differences rather than measurement ones.

The second order analysis looked at the differences in the direct path estimates (individual and aggregate), mediation and moderation at the group level. Table 6.3 presents the results of the multiple group analysis on the path estimates to help unearth any trait differences between firms operating in low R&D intensity industries and medium-high intensity industries. The goodness of fit scores for the individual path estimates were excellent: $\chi^2_{(20)} = 19.35$, $p > 0.05$; CFI = 0.99; TFI = 0.95; and RMSEA = 0.05. The R squared results were also strong with the lowest score registered for market linking capabilities ($R^2 = 0.18$). The aggregate analysis also returned excellent goodness of fit scores: $\chi^2_{(15)} = 20.23$, $p > 0.05$; CFI = 0.99; TFI = 0.97; and RMSEA = 0.04. The R squared scores were also very strong for both groups. At the individual firm capabilities level, the only difference between the two groups was that the marketing capabilities had a significant impact on current export performance among firms that operated in medium-high R&D intensity industries, whereas this was not the case for those in low R&D intensity industries. Once the data were aggregated, this difference no longer existed overall as both groups returned significant results for the impact of aggregated firm capabilities on current export performance. Note that although individually the elements of firm capabilities did not significantly drive current export performance for low R&D intensity industries, collectively they did when controlling for market types, number of markets, international experience, firm size and degree of internationalisation.

Table 6. 5 Multiple group assessment of path estimates

Hypothesised path			Low R&D intensity		Med-high R&D intensity	
			Std, β	*p*-value	Std, β	*p*-value
Individual path estimates						
Past export performance	→	Current export performance	0.76	0.001	0.70	0.001
Past export performance	→	Technology	0.47	0.001	0.54	0.001
Past export performance	→	IT	0.47	0.001	0.57	0.001
Past export performance	→	Market linking	0.34	0.001	0.45	0.001
Past export performance	→	Marketing	0.56	0.001	0.64	0.001
Technology	→	Current export performance	0.04	0.427	0.07	0.322
IT	→	Current export performance	-0.04	0.424	-0.17	0.161
Market linking	→	Current export performance	0.03	0.425	-0.01	0.536
Marketing	→	Current export performance	0.12	0.210	0.27	0.024
R^2 Scores						
Technology			0.30		0.33	
IT			0.27		0.33	
Market linking			0.18		0.22	
Marketing			0.38		0.41	
Performance			0.76		0.71	
Aggregated path estimates						
Past export performance	→	Aggregated firm capabilities	0.61	0.001	0.68	0.001
Past export performance	→	Current export performance	0.75	0.001	0.72	0.001
Aggregated firm capabilities	→	Current export performance	0.17	0.002	0.19	0.007
R^2 Scores						
Aggregated firm capabilities			0.42		0.43	
Current export performance			0.76		0.70	

Source: Own elaboration. Notes: $\chi^2_{(15)}$ = 20.23, CFI = 0.99 TLI = 0.97, RMSEA = 0.04; 95% C.I. 0.05; Estimator = ML; n = 274 - low R&D sample = 161; and Med-high R&D sample = 107.

The group result for the aggregated model showed that aggregated firm capabilities continued to mediate the effects of past export performance on current export performance for both groups, but the moderating role of adaptations strategy varied for low and medium-high R&D intensity industries. The goodness of fit scores were excellent meaning that the aggregated model adequately fit the data (χ^2 = 27.6, $p > 0.05$; CFI = 0.99; TFI = 0.96; and RMSEA = 0.04). Aggregated firm capabilities mediate the relationship between past export performance and current year export performance for both groups of firms (unst. β = 0.09; $p < 0.05$). In terms of the moderating role of adaptation strategy on firm capabilities and current export performance, the results in Table 6.3 show that adaptation strategy does not moderate the link between aggregated firm capabilities and current export performance for firms that operate in low R&D intensity industries (unst. β = 0.05, t = 1.25, $p > 0.05$). In other words, firms within the low R&D intensity industries do not necessarily derive improved performance by adapting their practices when firm capabilities are low. Conversely, medium-high R&D intensity industry firms revealed that adaptation strategy certainly strengthens the positive

relationship between firm capabilities and current export performance (unst. $\beta = 0.19$, $t = 2.81$, $p < 0.05$); when controlling for market type, number of export markets, international experience, firm size and degree of internationalisation.

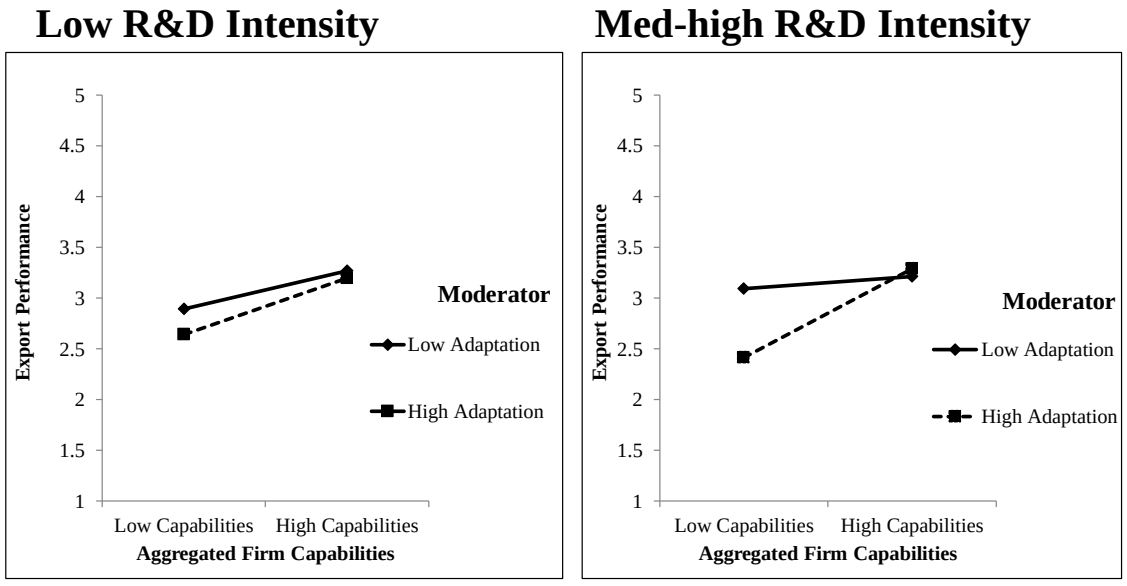
Table 6. 6 Interaction path estimates

Aggregated path	Unst. β	*t*-value	*p*-value
Low R&D Intensity Industries			
Adaptation | Capabilities → Export performance	0.05	1.25	0.213 s.
Medium-High R&D Intensity Industries			
Adaptation | Capabilities → Export performance	0.19	2.81	0.005

Source: Own elaboration. Notes: 2,000 bootstraps; Akaike (AIC) = 254.10. Bayesian (BCC) = 273.90. Estimator = ML; n = 274.

Figure 6.2 graphically presents the results for the moderating effects of adaptation strategy on aggregated firm capabilities and current export performance. The chart on the left is for firms operating in low R&D intensity industries and the one on the right for those operating in medium to high intensity industries.

Figure 6. 5 Firm capabilities and adaptation interaction with export performance by group



6.5 Summary

In summary, the second stage of structural equation modelling approach was conducted in this chapter with the aim of testing the study hypotheses. In advance of developing the structural model, tests were carried out to check for any influential outlier observations in the dataset and evidence of possible multicollinearity. The influential outlier observation test returned one case which registered some unusual but comprehensible responses and was retained in the data for analysis. There was little evidence of multicollinearity using moderate measurement thresholds. Market type

(emerging/developed), number of export markets, international experience, firm size (denoted by number of staff) and degree of internationalisation were introduced in the model with the aim of preventing these variables from having an unmeasured impact on the results. Once the model was set up in AMOS, for each of its iterations the appropriateness of the model to test the hypotheses was determined by undertaking a series of global to local test - checking for overall goodness of fit, R squared and then *p*-values. In all cases, these measures were appropriate and the results pertaining to the hypotheses were accepted. Where hypotheses were rejected, *post hoc* statistical tests were carried out to determine the chances of deriving a wrong result given the dataset.

Table 6.4 overleaf provides a summary of the hypotheses results. The anticipated relationship between past export performance and current year export performance was supported (H1). Similarly, the relationships between past export performance and aspects of firm capabilities were all supported (H2a, H2b, H2c H2d). Marketing capabilities had a positive and significant impact on current export performance. Hence H3c was supported. Technology and market linking capabilities did not have a significant impact on current export performance, hence H3a and H3d were rejected. Information technology capabilities returned a negative and significant impact on current export performance. As a positive impact was anticipated, H3b was also rejected. The indirect effect of past export performance on current export performance through marketing capabilities was significant, lending supported to H4c. H4a, H4b and H4d were rejected. Adaptation strategy significantly moderated the relationship between technology, information technology, marketing and market linking capabilities and current export performance providing support for H5a, H5b, H5c and H5d. The managerial and theoretical implications of the findings are discussed in depth in the next chapter.

Table 6. 7 Summary of hypotheses results

ID	Description	Results
H1	Firm's past export performance positively influences current export performance outcomes	Supported
H2a	Firm's past export performance positively influences firms' technological capabilities	Supported
H2b	Firm's past export performance positively influences firms' information technology capabilities	Supported
H2c	Firm's past export performance positively influences firms' marketing capabilities	supported
H2d	Firm's past export performance positively influences firms' market linking capabilities	supported
H3a	Technological capabilities positively influence export performance outcomes	Rejected
H3b	Information technology capabilities positively influence export performance outcomes	Rejected
H3c	Marketing capabilities positively influence export performance outcomes	Supported
H3d	Market linking capabilities positively influence export performance outcomes	Rejected
H4a	Technological capabilities positively mediate the relationship between past export performance and current export performance	Rejected
H4b	Information technology capabilities positively mediate the relationship between past export performance and current export performance	Rejected
H4c	Marketing capabilities positively mediate the relationship between past export performance and current export performance	Supported
H4d	Market linking capabilities positively mediate the relationship between past export performance and current export performance	Rejected
H5a	The effect of technological capabilities on export performance are moderated by firm's adaptation strategies, such that the effect is stronger when levels of adaptation are high than when they are low	Supported
H5b	The effect of information technology capabilities on export performance are moderated by firm's adaptation strategies, such that the effect is stronger when levels of adaptation are high than when they are low	Supported
H5c	The effect of marketing capabilities on export performance are moderated by firm's adaptation strategies, such that the effect is stronger when levels of adaptation are high than when they are low	Supported
H5d	The effect of market linking capabilities on export performance are moderated by firm's adaptation strategies, such that the effect is stronger when levels of adaptation are high than when they are low	Supported

Source: Own elaboration. All hypotheses were controlled for firm size, international experience, type of international markets, degree of internationalisation and number of international markets.

Post hoc analysis revealed that past export performance significantly and positively influenced aggregate firm capabilities. Similarly, aggregated firm capabilities positively and significantly influenced current export performance and that relationship was significantly moderated by adaptation strategy. The indirect effect of past export performance on current year export performance through aggregate firm capabilities was also positive and significant. Multiple group results revealed that the moderating effects of adaptation strategy on aggregate firm capabilities and current export performance was true only for firms operating in medium-high R&D intensity industries and not for those operating in low R&D intensity industries.

CHAPTER 7. DISCUSSION AND CONCLUSIONS

This chapter discusses the implications of the results presented in the previous chapter. It is structured as follows. The findings related to the research hypotheses are first discussed thematically, focusing on each of the study research objectives. The section restates the different research hypotheses and their result. This is followed by a detailed discussion of the implication of each of these results in light of the existing literature. After the discussion of these core findings, other aggregated findings are discussed. The chapters ends with the conclusions which presents the theoretical, managerial and policy implications, as well as the limitations of the study and suggestions for future research.

7.1 Discussion

This study was motivated by a desire to gain a better understanding of export-specific internationalisation of manufacturing firms operating in the Caribbean region. This was achieved by looking specifically at the interrelationship between firm capabilities, organisational learning, adaptation strategies and export performance. To do so the study utilised aspects of two theories; organisational learning theory and resources-based view. The organisation learning theory took into account the direct and indirect role of past performance on export performance and its contribution to firms' capabilities and considered the extent to which firms' adaptation strategies moderate the relationship between firm capabilities and export performance. Meanwhile the resource-based view theory was used to develop the relationship between firm capabilities and export performance. The study posited the following research question and objectives (SO) and a discussion of the results are set out under each of them:

RQ: *How do past export performance, firm capabilities and adaptation strategy interact to influence current export performance of Caribbean manufacturers?*

In order to help guide a response to the outlined research question, a number of more specific research objectives were outlined:

(SO1): To examine the extent to which past outcomes influences firms' capabilities and export performance;

(SO2): To examine the extent to which firm capabilities drive export performance amongst Caribbean manufacturers;

(SO3): To explore the extent to which the effects of past export performance on firm capabilities help drive current export performance;

(SO4): To explore the extent to which the relationship between firm capabilities and export performance is weakened or strengthened by learning-based adaptation in firms' activities;

(SO5): To explore any variations in the overall export performance model for firms operating under differing condition of operations.

7.1.1 (SO1): To examine the extent to which past outcomes influences firms' capabilities and export performance

The data from the study supported the hypothesis that past export performance positively impacted firms export performance. This means that firms that register satisfactory export performance are more likely than those that did not, to have satisfactory future performance. Certainly, firms learning from past events tends to underpin all aspects of their ability to sense and seize opportunities and respond to possible threats (Johnson et al., 2008; Barney 1991; Teece, 2014) and hence positive results in this obviously helps drive export performance through the actions of management. As the results were over the short term, this learning would take the form of exploitative learning, which largely looks to refine, choose, produce, select, implement, execute and make more efficient a firm's area of competitive advantage (Cyert & March 1963; March, 1991). This finding lends support to the general claim that firms learning from their past success (or failure) help drive maximum gains in the short term (Wang, Senaratne, & Rafiq, 2015). Wang et al., (2015) also indicated that information about past performance success informs a firm on exactly what it needs to do, and under the performance-based reward systems implemented most firms, individuals are largely motivated to learn from success and take the actions that they associate with high performance. Similarly, the results provide further credence to the claim that past performance reinforces exploitation on a current success path (Gupta, Smith & Shalley, 2006; March 1991). The finding is important for firms belonging to SIDS who hopes to improve their export performance with limited slack resources to invest in exploration activities (Lu, Zhou, Bruton & Li, 2010). The findings provide evidence that firms should develop robust exploitative organisational learning systems as they look to improve and sustain international trade in the short to medium term.

The use of past export performance as driver of export performance is a developing area of research. The findings provide additional support to Lages et al., (2008) in which past export performance was first conceptualised as an antecedent of export performance and Lages & Montgomery (2001) in which past performance was

also conceptualised as an antecedent of export commitment. In the case of Lages et al., (2008), a disaggregated measure of past performance was presented which provided some partial support for their hypothesis on export performance. By contrast this study has looked at past performance as an aggregate multidimensional latent variable which is widely used for export performance (Chung et al., 2019). The aggregate measure was used because firms may have conflicting strategic goals for the individual items of performance (Gavetti, Greve, Levinthal & Ocasio, 2012; Morgan et al., 2003; Lisboa et al., 2011). Management, for example, may pursue a high profit strategy which caused the firm to yield adverse levels of sales volume, as it would have to set prices at the highest possible level, thus sacrificing its sales volume (Chen et al., 2016; Sousa et al., 2008). In this regard, this study firstly provides additional support for the use of an aggregated past performance measure and secondly suggests that this measure or antecedent has a positive and significant influence on a firm's export performance.

The research found that past export performance had a positive impact on firms' technology, information technology, market linking and marketing capabilities. The findings show that all individual items within firm capabilities conceptualised in this study also benefited from the learning derived from past performance. This provides further support for Teece (2007; 2014) who posited that capabilities arise from firms learning from their resources and history. In other words, history places a role in developing a firm's areas of capabilities (since capabilities are defined as aspects of a business that a firm does better than its competitors) (DeSarbo et al., 2007). These findings are important because firms tend to develop along specific technical and/or organisational trajectories which may then determine the scope of their capabilities (Helfat & Winter, 2011). In so doing an understanding of the granular effects of learning on each of these capabilities areas is necessary where a more focussed effect of exploitative learning is required (Lages et al., 2008; Teece, et al., 2014; Leonard-Barton, 1992; Weinstein & Azoulay, 1999). Firms work to identify firm-level behaviours that are linked to positive or negative outcomes, repeating those behaviours that drive positive outcomes and eliminating behaviours that result in negative outcomes (Morgan et al., 2003; Lisboa et al., 2011; Chung et al., 2019; Levinthal & March, 1981; Sousa & Bradley, 2008). Each firm holds, at a given time, some specific areas of capabilities that are linked to its own history and this helps to condition their evolution and transformation.

7.1.2 (SO2): To examine the extent to which firm capabilities drive export performance amongst Caribbean manufacturers

Firm capabilities were defined as being comprised of four functional capabilities which were marketing, market linking, technology and information technology capabilities. The results showed that marketing capabilities mattered more in influencing export performance than any other area of possible advantage (Lilien, et al., 2011). Marketing capabilities were revealed as having a positive and significant impact on export performance. This means that firms that have an advantage in marketing relative to their main competitors, then exerts a positive impact on export performance (e.g., Tan & Sousa, 2013). Marketing capabilities enables firms to add value, meet competitive demands and improve performance by being more effective than competitors in knowing their competitors and customers (e.g., DeSarbo et al., 2005, 2006 and 2007). Capabilities in this area give firms the ability to deploy integrated processes that are designed to apply the collective knowledge, skills and resources to meet international market related needs (Amit & Shoemaker, 1993; Day, 1994; Eisenhardt & Martin, 2000;). Where firms possess advantage in this area, it also allows them to more effectively implement marketing programmes by taking advantage of other capabilities areas such as market linking and technology (Eisenhardt & Martin, 2000; DeSarbo, Di Benedetto & Song, 2008). With respect to firms operating in SIDS, it is encouraging to see that some firms possess advantage in this area, as such advantage is more likely to be sustainable in the short to medium term as they are more likely to be rare, valuable, non-substitutable, and inimitable.

The findings from this study correspond to and extend this existing understanding of the influence of marketing capabilities on export performance. Marketing capabilities have been shown to be a source of competitive advantage and driver of superior performance. A number of scholars have reported a positive and significant link between marketing capabilities and export performance (Krasnikov & Jayachandran, 2008; Fang & Zou 2009; Morgan, Slotegraaf, & Vorhies, 2009; Vorhies & Mason, 2009; Theodosiou, Kehagias, Katsikea, 2012; Murray, Gao, & Kotabe, 2011). The findings also provided support for scholars who indicated that marketing capabilities have a stronger impact on performance than other functional areas such as research and development, and operations capabilities (Krasnikov & Jayachandran, 2008; Song et al., 2005; Vorhies & Morgan, 2005). As this study was conducted in the Caribbean (an areas in which a study of this nature has never taken place) the findings also provide support for the greater

generalisability of the view that marketing capabilities positively influence export performance in the way it was conceptualised here.

Despite theoretical support for the relationship found in previous studies (Tsai 2004, Hsieh and Tsai 2007; DeSarbo et al., 2007; & Wang, et al., 2006), the results failed to confirm the link between technological capabilities and export performance. There is a possible explanation for this. Despite the RBV considering this capability a critical source of competitive advantage (e.g., Barney, 1991; Wernerfelt, 1984), the mere possession of a capability does not necessarily mean an improvement in performance. Capabilities can turn into core rigidities and may have a negative impact on some aspects of firm performance (Haas & Hansen, 2005). Vicente, Antunes & Malva (2016) explored this proposition further and concluded that without a firm's ability to act on innovation intensity, technological capabilities will not affect the performance of exporting firms. This finding is interesting because earlier in this study it was indicated that the innovative aspects of learning, and its impact, tend to happen in the long term and the adaptive elements in the short term (Spender & Grant, 1995; Tsai, 2004). Technological capabilities may become core rigidities in firms which have limited resources. For example, Vicente et al., (2016) concluded that exporting firms that have limited resources have to make tough decisions on whether to spend money on marketing versus technological capabilities. In the short-term, they conclude, management tend to focus on those marketing capabilities which focus on superior customer value. In sum, the data did not support this hypothesis but that does not mean that technological capabilities are unimportant, but rather that its effect on export performance is highly dependent on a firm's innovative intensity.

The findings also failed to confirm that information technology capabilities have a positive influence on export performance. Instead the findings provide support for Bharadwaj, (2000) who found that IT capabilities had a significantly negative significant influence on a firm's performance. Similar to the finding of Vicente et al., (2016), Tippins & Sohi (2003) found that IT capabilities became insignificant through the mediating variable of organisational learning. They indicated that the benefits resulting from the innovative application of information technology could be defended only if the system exploits the unique resources of the innovating firm so that competitors do not fully benefit from imitation. Another possible explanation, for the reason that IT capabilities might not create competitive disadvantage, is that, for relatively low technology firms, investment in complex IT capabilities (if at all) could have an adverse effect on

comparative performance (Zhang et al., 2013; Bharadwaj, 2000). Also, exporting firms with limited resources might not invest in resources with formal integrative data architecture (e.g., Dhungana, 2003). With relatively simple IT architecture, and IT not being indispensable for performance they could lag behind in terms of upgrades. Through the process of institutionalisation, certain architectures might then become linked to work practices in parts of the organisation, making it difficult to modify. It is possible that IT capabilities can provide benefits, albeit limited, but if the firm has limited innovative intensity, it is not likely to drive performance in a meaningful way. Core rigidness in IT capabilities can also become from external sources, as this capability is dependent to a large extent on the telecommunication infrastructure of the country and its support skills where they are based, and this is an area meriting some improvement in the Caribbean.

The data did not provide support for the claim that market linking capabilities exerts a positive influence on current export performance. The perceived advantage that firms have in market linking or relational capabilities does not aid the export performance of Caribbean manufacturers. There are three possible explanations for this; firstly, market linking capabilities might not be systematically linked to the business strategy of these firms (Song, et al., 2008; Bednarek et al., 2016). As a consequence, this capability area does not help to determine the most effective and efficient way to relate to customer needs. Market linking capabilities are sophisticated processes of relationship building which require more than casual meetings without specific goals in place (Hao & Song, 2016). Secondly, some Caribbean manufacturers may be quite reactionary, lacking long term plans and consistent strategy. Under these conditions, market linking capabilities are unable to drive export performance (Song, et al., 2008). Thirdly, there may also be the possibility of the dark side effects of market linking capabilities (Hsu & Wang, 2012). This may be relevant in this study, since almost 6 out of 10 firms who responded (57%) were involved in exporting activities for 15 years or more. The ‘dark side effects’ occur in very long term relationships when objectivity and opportunism is lost, and instead individuals’ views of a firm become stale or they become too similar in their thinking. One or a combination of these factors can see market linking capabilities having no positive impact on export performance.

7.1.3 (SO3): To explore the extent to which the effects of past export performance on firm capabilities help drive current export performance

The study also determined whether the effects of past export performance on firm capabilities help drive current export performance. The findings confirmed that some

aspects of firm capabilities positively mediate the relationship between past export performance and current export performance. This means that some of the effects of past export performance on current export performance can be explained through firm capabilities (e.g., Jiang & Kortmann, 2014; Zhou, Wu, & Barnes, 2012). Specifically, marketing capabilities mediates the relationship between past export performance and current year export performance. This means that satisfaction with past export performance increases confidence in a firm's marketing capabilities and therefore reinforces their commitment in this functional business area as it yield competitive advantage. Past success signals to management that they should stay the course and only make slight changes to practices where necessary to sustain and even increase efficiency (e.g., Snok et al., 2016; Wang et al., 2015). In practical terms a firm's confidence and commitment in its marketing capabilities are directly linked to its past performances (e.g., Weerawardena et al., 2019; Lages et al., 2004). The firm should ensure that the activities which yield advantage are adaptable linking to prior performance feedback loop (Kohtamaki et al., 2015; Teece 2014; Snok et al., 2016). Market linking and technology capabilities do not mediate the relationship between past export performance and current export performance, largely because both functional areas do not drive the export performance of Caribbean manufacturers for the possible reasons mentioned above.

Conversely, information technology capabilities have a negative indirect effect on past and current export performance. So, whilst past export performance has a positive link to information technology capabilities, information technology capabilities have an unanticipated negative impact on current export performance, yielding the combined negative effects. This mediation is called an inconsistent mediation as it produced when direct effects are opposite in sign (MacKinnon et al., 2007). Given the adverse impact that information technology capabilities have on current export performance, information technology capabilities act as a suppressor variable. Firms may commit to their perceived information technology advantage, but this commitment has an adverse impact on current year export performance because information technology capabilities suppress export performance.

The results of this study are unique in the literature because they are the first to deploy firm capabilities as mediator of past export performance and current export performance and therefore a new area for future scholars is open up. The findings provide some support for the nature of the mediating role of firm capabilities found in the literature. In the studies reviewed, there are examples of firm capabilities only acting as

a positive mediator. In this regard, the findings on marketing capabilities provide support to other findings returned by Sok et al., (2016), Zhou et al., (2012), Hsu & Wang (2012), and Lu et al., (2010), where these scholars indicated that firm capabilities, functional or otherwise, acts as a positive mediator between their antecedents (e.g., entrepreneurial orientation, timing of international market entry, relational capital) and export performance. Therefore this study confirms and provides support for the significant and positive mediating role of firm capabilities between past and current year export performance.

7.1.4 (SO4): To explore the extent to which the relationship between firm capabilities and export performance is weakened or strengthened by firms' adaptation strategy

Now that the indirect effect of past export performance through firm capabilities has been discussed, this study included a further element to determine whether firm capabilities interaction with adaptation strategy strengthens or weakens this effect of capabilities on export performance. An adaptation strategy is the best practical manifestation of learning organisations (Navaro et al., 2010; Leonidou et al., 2002; Zou & Cavusgil, 2002). The result confirmed in this study indicates that the effects of firm capabilities on current export performance is moderated by adaptation strategy , such that when firm capabilities are low, their effect on current export performance is strengthened by higher adaptation. Indeed, marketing, market linking, information technology and technology capabilities link to current export performance are significantly moderated by adaptation strategy.

Adaptation strategy strengthens the positive relationship between marketing, market linking and technology capabilities and current export performance. Conversely, adaptation strategy dampens the negative impact of information technology capabilities and current export performance. In line with organisational learning theory, the results indicate that Caribbean firms that implement some modifications to their practices in the short term should possibly derive some export performance boost (Morgan et al., 2004; Stoian, 2011; Dow 2006; Solberg 2002; Douglas & Wind, 1987). In the case of Caribbean manufacturers, this would apply more to firms that export more to emerging markets than other types of markets, given the significant controlling effect of market type. The results show that firms apply adaptation strategies for the markets in which they are most competitive (Zhou, Wu, & Barnes, 2012; Lu, Zhou, Bruton; Li, 2010). These are important findings because firms benefit from adapting their processes and practices for

export markets in the following ways: a) they can improve relationships with intermediaries (Navaro et al., 2010); b) they can achieve higher profitability as their offer and market needs align more closely with customer needs (Leonidou et al., 2002); and c) they can enable firms to adjust to particular characteristic of foreign markets and thus reduce the liability of foreignness (Madsen 1989).

Additionally, the results of this study returned a negative direct association between adaptation strategy and current export performance, that is, firms adapt practices when performance is low. On the whole, this study provides confirmation on the widely supported claim that firms that identify areas for improvement and adapt them to market conditions tend to yield improvements in their performance (e.g., Zou & Cavusgil, 2002; Navaro et al., 2010; Magnusson et al., 2014; Dow 2006; Sousa & Bradley, 2008). Similarly, the findings provide support to Morgan et al., (2004) who indicated that firms that participate in international business need to constantly assess their ability to compete through efficient and effective levels of adaptation. Support was also provided for the standardisation–adaptation continuum approach to adaptation strategy measurement (Jiang & Kortmann, 2014). In other words, adaptation is not simply a monotonic positive or negative correlation between itself and capabilities, but rather that at some point along the continuum it will represent a superior level of competitive advantage (Dow 2006; Solberg 2002; Douglas & Wind, 1987). Lastly, this study made a contribution by utilising some organisational and environmental variables in the model to have a greater understanding of the condition under which the adaptation is probably most effective (Szymanski, Bharadwaj & Varadarajan, 1993; Stoian et al., 2011; Navaro et al., 2010; Morgan et al., 2004). The findings therefore provide confirmation and support to the existing body of literature regarding the moderating role of firms' adaptation strategies.

7.1.5 (SO5): To explore any variations in the overall model for firms operating under differing condition of operations

In the literature, models tend to provide an overall picture of the determinants of export performance but few have included multiple group analysis to unearth any possible differences between firms operating under varying industry conditions. This study undertook a *post hoc* multiple group analysis and the findings confirmed significant differences between firms operating in low R&D intensity industries and those operating in medium-high R&D intensity industries (OECD 2012) in the way past export performance and firm capabilities influence export performance (Filatotchev, et al., 2009). Noting that the model for the groups was invariant, the difference between the

groups was observed specifically on the effects of marketing capabilities on export performance. Whilst the marketing capabilities of firms within medium-high R&D intensity industries significantly impact current export performance, that was not true for firms operating in low R&D intensity industries (Weewardena et al., 2006; Levintal & Myatt, 1994; Barney & Zajac, 1994). This finding is significant: it shows that none of the four functional capabilities areas presented in this study individually contribute to export performance of firms in low R&D intensity industries in a significant way. A possible explanation for this finding is that these firms are operating in industries that are not very dynamic. Firms that operate in industries that are not dynamic tend to have very little market-focused learning (Weerawardena, O'Cass, & Julian, 2005). Since market-focused learning is a core competency pertaining to external foci, it may result in these firms having very limited competitive advantage in marketing.

The findings contribute to the literature on competitive organisational behaviour, in the area of firm heterogeneity (even industrial organisational views) and competitive advantage. In the past decade, scholars have been exploring the link between industry structure and firm capabilities (e.g., Archibugi, Filippetic, Frenz, 2013; Levinthal & Myatt, 1994). Competition leads to competence, suggesting that as firms learn how to overcome specific competitive challenges, they develop potentially valuable resources and capabilities. These resources and capabilities can give firms important competitive advantages, which are not available to firms that did not have to respond to competitive threats by developing relevant competencies (Barney & Zajac, 1994). In other words, firms that are associated or operate in low R&D intensity industries, for example, develop unique areas of capabilities, which are reflected in the findings presented here. More specifically, the findings also provide support for Erikson & Knudsen (2003), who found that marketing and market linking learning capabilities were influenced by industry structure. In the case of this study the marketing capabilities of firms were also influenced by the industry structure. Therefore, the findings provide additional insight by revealing that the industry effect captures part of the extent to which firm's capabilities influences export performance.

None of the individual functional capability areas positively impacted export performance for firms operating in low R&D intensity industries but collectively they had a positive and significant export performance. The functional capability areas of a firm interact with each other to produce some impact on performance. Ho & Tang (2004) indicated that where functional areas work well together they lead to superior competitive

advantage and sustainable profits. It is actually widely accepted, even among business leaders, that the ability to integrate cross-functional expertise is essential for continued growth and profitability of firms (Wind, 2005). Therefore, in the case of this study, it appears that the synergies between the functional capabilities increase their effectiveness and efficiency, and on the whole positively influence export performance (Moorman and Slotegraat; 1999; Mu & Di Benedetto, 2011). The interactions between capabilities are more efficient and effective than that of any of the individual capabilities acting independently. The whole is worth more than the sum of the parts. Again this finding was derived because the model was analysed at a granular level. The findings are an important contribution going forward because it demonstrates the importance of strong cross functional integration in firms especially among those that may not have very strong functional capability areas.

The findings also confirmed that firms that operate in a low R&D intensity industry will undertake significantly less adaptation, with that adaptation, if any, having no significant impact on export performance. Firms operating in these industries tend to assign limited resources to research and development and are viewed as being less likely to leverage the benefits of organisational learning (Weewardena et al., 2006, Levintal & Myatt, 1994; Barney & Zajac, 1994). Where firms operate in industries that are not dynamic, they tend to have very little market-focused learning, for example. R&D intensity and learning are expected to influence a firm's efforts to adapt products to local market conditions, offer inimitable applications and then take advantage of the market opportunities through continuous product and process development (Weerawardena, 2005; Zahra, Ireland, & Hitt, 2000). However, the adaptation strategy of these firms does not make any meaningful impact on export performance, which is not the case for other firms operating in medium-high R&D intensity industries. The findings lend support to the RBV theory of firm heterogeneity which posits that differences between firms emerge from management's varying perception of the environment and the strategies that they use to implement to address the environmental stimuli (Helfat & Peteraf, 2003; Peteraf, 1993; Hoopes et al., 2003).

In this study, the industry-based grouping of firms were based on the R&D intensity, and the findings of this study make a contribution to that aspect of the literature as well as those on firm heterogeneity. In the first instance, support was provided for the claim that R&D intensity is directly linked to organisational learning and performance. For example, support was provided for Filatotchev et al. (2009) claim that investment in

R&D helps firms not only improve competitiveness at home but also helps them to take advantage of opportunities presented internationally. Support was also provided for their claim that firms that innovate and invest in R&D also exploit aspects of export markets' growth opportunities. In this case, firms operating in industries that are generally characterised as having low investment in R&D return no meaningful effects from their learning on export performance. More specifically, the findings concur with Zahra, Ireland, & Hitt (2000), who posited that R&D intensity and learning influence the firm's effort to adapt products to local market conditions, offer inimitable applications and then take advantage of new markets opportunities through continuous product and process development. Furthermore, the findings make a contribution to international business literature by looking not only at the overall impact of prior performance, capabilities and adaptation strategy on export performance, but also looking at a possible variation at an industry grouping level (Amemiya, 1994; Sousa et al., 2008). The findings moved away from the generally accepted assumption in data analysis that variation between variables is constant with any variability largely ignored (Bowen & Wiersema, 1999).

7.1.6 Aggregated level findings

Past export performance was also shown to have a positive and significant impact on aggregated firm capabilities. The findings reveal that firms that experience satisfactory export performance are more likely to be committed to their existing capabilities. Using the fundamental assumptions of organisational learning theory success signals positive feedback that ties a firm's previous success to that of existing product-market environment (e.g., Morgan, Kaleka, & Katsikeas, 2004; Burgelman, 2002; Snok et al., 2016). Success generates feelings of optimism, enthusiasm and commitment in firms' areas of advantage (Wang et al., 2015). Lages & Montgomery (2001) specifically found that past export performance had positively influenced export commitment. Firms do not make significant structural changes in the short-term but instead stick to their trajectory using exploitative learning to successfully improve their capabilities and efficiency (Wang, Senaratne, & Rafiq, 2015; Teece et al., 1997; March, 1991; Archibugi, Filippetic, Frenz, 2013). Therefore, the exploitative learning and the small incremental changes deriving from it would be expected to enhance firm capabilities. This may be an area of interest for firms operating in small island developing states where resources for complete redesign of entire capability areas are limited. The positive link between past export performance and firm capabilities should largely be considered as a short to medium-term phenomenon. This is because this approach of firm management may become a liability

if deployed alone: in the long term firms could fall into what is termed a 'success trap', which tends to hinder innovation and depress performance (Wang et al., 2015; Gupta, Smith & Shalley, 2006; Burgelman, 2002). So importantly, the benefits that are derived from learning from past export performance has a positive impact on firm capabilities or areas of advantage in the short term.

Aggregated firm capabilities also returned a positive and significant impact on the export performance of Caribbean manufacturers. While the individual contribution of functional capability areas to the international business literature are already discussed, this finding provides support for the cross-functional capabilities of firms (Mu & Di Benedetto, 2011; Song et al., 2005). The synergy between functional capabilities tends to increase their effectiveness and efficiency. For example, marketing and technology-related capabilities interact to positively affect firm export performance and this synergistic effect in performance can be substantive in some environments (DeSarbo et al., 2006; Song et al., 2005). For example, when conditions change (e.g., customer's needs change) the marketing and market linking capabilities should pick this up, but the technological capabilities should also spring into action to meet those needs (Sousa et al., 2008; Wind, 2005). The product of the interactions between capabilities could potentially be more efficient and effective than that of the individual capabilities acting independently on export performance (Day, 1994). So, overall cross functional capabilities significantly drive export performance, whilst they take into account both the individual and cross-functional effects of firm capabilities. In the context of Caribbean manufacturers, this finding is important because it shows that firms operating in low R&D intensity industries do not have any individual functional capability advantage relative to their competitors, which significantly drives export performance. However, these capabilities – when combined- have a positive impact on export performance due to cross functionality.

Aggregated firm capabilities returned a positive mediation between past export performance and current export performance, largely driven by firms marketing capabilities as noted above. A gap in the international business literature exists regarding the mediating role of firm capabilities between past export performance and current export performance. These findings contribute to the literature in two ways going forward: by providing evidence on whether the indirect or mediating relationship was significant; and by providing evidence on whether the overall nature of that relationship was positive or negative. Indeed, firm capabilities have been found to be a significant

mediating variable (e.g., entrepreneurial orientation, timing of international market entry, relational capital) confirming findings in the literature within this specific context (e.g., Jiang & Kortmann, 2014; Zhou, Wu, & Barnes, 2012; Lu, Zhou, Bruton & Li, 2010) but not as a mediating variable for past and current year export performance.

Overall, this study has successfully answered the main research question "***RQ****: How do past export performance, firm capabilities and adaptation strategy interact to influence current export performance of Caribbean manufacturers?*" To that end, the study has introduced a new model to international business literature that provides an alternative explanation for the current export performance of firms. The model successfully revealed that firm capabilities mediate the relationship between past and current export performance and that relationship is moderated by adaptation strategy. In other words, the model shows that firms that register high levels of satisfaction with past export performance would go on to return high levels of satisfaction with current year export performance. However, part of the effects on current export performance are as a results of the learning derived from past outcomes, which strengthens firms' confidence and commitment in their functional capabilities, at least in the short term. The positive feedback loop encourages firms to sustain these areas of advantage, which in turn goes on to positively influence export performance. However, where areas for improvement are highlighted, adaptation in practices strengthens the impact of firm capabilities on current export performance where capabilities are low.

7.2 Conclusions

The goal of this study was to advance the concepts of past export performance, firm capabilities and adaptation strategy as valid approaches to the conceptualisation and measurement of current export performance. The thesis started by demonstrating the importance of this endeavour, pointing out the relevance of studying export performance and how firm's past export performance, capabilities and adaptation strategy constitute a better approach to measuring current export performance. This is in contrast with other existing views, such as those which espouse the use of only resource-based antecedents (Chen et al., 2016; Sousa et al., 2008). The key argument advanced here is that the current approaches to understanding export performance fail to account fully for its multi-faceted notion, with proposed antecedents in the literature yielding conflicting effects on performance, such as items having both positive and negative impact. A critical analysis of the export performance literature highlighted the shortcomings of current research in understanding export performance by using higher level drivers of firm performance such as capabilities. With firm capabilities explored as antecedents of export performance, past export performance and the level of adaptation of firm capabilities were also highlighted as potent concepts to further address this identified gap. The interaction between past export performance, firm capabilities and adaptation strategy provided an approach to export performance study which has only been partially explored by past researchers.

This thesis advanced the theoretical background for the study which looked to make a contribution to organisational learning and resource-based view (RBV) theories in relation to the question of export performance. Organisational learning theory indicated that past export performance is an important source of learning. The implication is that learning from past successes or failures is a key source of confidence, or lack thereof, in the way firms operate and add value. This encourages them to continue to invest and pursue their areas of competitive advantage through appropriate adaptation strategies. The RBV theory helped identified firm capabilities as the main source of competitive advantage and superior export performance. The concept of export performance was then identified as a complex issue due to the lack of agreement on a definition. It was finally viewed as a multifaceted variable, including financial and non-financial measures. It was mostly studied subjectively – by recording respondents' perception of performance rather than objectively – requiring actual business performance figures such as exact profitability numbers. Being multifaceted export performance was conceptualised as a latent variable which meant that the explanatory items were reflective (the observed

indicators of performance being considered or assumed to be effects or manifestations of a performance factor) which is most common with researchers. Export performance was mostly conceptualised as static a variable rather than a dynamic one (i.e., taking into account multiple years of performance).

The study proposed a theoretical framework for past export performance, firm capabilities, adaptation strategy and current export performance. It posited a conceptual model denoting the key hypotheses. Past export performance was conceptualised in the same way as current export performance, incorporating both financial and non-financial items, the only difference being that past export performance will have had occurred a maximum of three years in the past. Firm capabilities were composed of four dimensions (market linking, marketing, technology and information technology). Adaptation strategy was a single dimension factor comprising of aspects of adaptation in firms marketing mix and operational activities. Firm capabilities were hypothesised as being first influenced by a firm's past export performance, which in turn influenced its current export performance whilst considering any adaptation strategies that the firm might adopt. Together, the relationships in the framework were best explained using a moderated mediation model whose output suggested the following theory. Firms who register high levels of satisfaction with past export performance would expect to return high levels of current export performance, in part because this would lead to high path confidence in their capabilities which they would look to sustain, and which would positively influence existing export performance. However, the effects of firm capabilities on existing export performance would be strengthened or weakened depending on the firm's adaptation strategy.

To test the study hypotheses, the study deployed a positivist methodological approach. An online questionnaire was developed using an iterative process, which in the first instance involved the development of the survey instruments from the extant literature. In order to reduce measurement error, the questionnaire was pretested and piloted with the assistance of a number of academics, industry professionals, and a sample of respondents. The study was conducted amongst export professionals in the English-speaking Caribbean. In the absence of a known sample frame of these export professionals, one was developed with the assistance of a number of agencies in the region. The overall number of firms in the English-speaking Caribbean that were involved in international trade was unsurprisingly low, and as a result the entire developed sample frame was approached to participate in the survey. In total 274 firms provided surveys

that could have been included in the study which represented about a quarter of firms. The sample included firms with a good mix of international experience. They were mostly SME and do the greater part of their business in the Caribbean, Central and South America.

7.2.1 Theoretical Contribution

The first contribution concerns the advancement and reconceptualisation of export performance using past export performance and firm capabilities. The drivers of export performance have largely concentrated on firm lower-order resources, resulting in a plethora of overlapping and intertwined concepts and methodological approaches (Sousa et al., 2008; Chen et al., 2016). This study enhances the current theoretical and practical understanding of export performance by proposing and empirically validating a framework that is more cognisant of higher firm resources or areas of competitive advantage. Advancing the notion of past export performance and firm capabilities as a valid conceptualisation of current year export performance is recognised and integrated under a single framework. By doing so, a significant advance is granted to the state of export performance research (Madsen, 1987; Aaby & Slater, 1989; Zou and Stan, 1998; Sousa et al., 2008; Stoian et al., 2011) and by extension, to international business strategy of Caribbean manufacturers (Bernal, 2000; Kendall, 2007; Payne, 2007). The study proposes that firm capabilities, past outcomes and adaptation strategy are key factors in explaining export performance and these three measures need to be considered if one is to measure satisfaction in current year export performance. The findings show that their interrelationship seems to be a crucial element. Through this exercise, precise insight was gained in terms of what firm capabilities, past export performance and adaptation strategy meant and how they could be operationalised. This thesis dissertation aims to provide a generic multidimensional conceptualisation of export performance that is replicable in any context beyond the Caribbean region. In this sense, the conceptual framework contributes to the wider export performance literature as well.

More specifically, this study adopted the organisational learning perspective to consider current export performance as a function of firm capabilities, past export performance and adaptation strategy. The central thrust of the study was that firm capabilities mediates the link between past export performance and current export performance and that this relationship was moderated by firms' adaptation strategies (e.g., DeSarbo et al., 2007; Lages et al., 2008; Chen et al., 2016; Ramsey et al., 2016; Chung, et al., 2019). The results suggested that, in the short term past export performance

has a significant and positive influence on existing firm capabilities and current export performance (e.g., Lages, et al., 2008; Mu & Di Benedetto, 2011). This is reflective of the organisational learning theory posited by March (1991) which indicates that short term exploitation learning elicits action that then leads to organisational change in the short term (Lages & Montgomery, 2005). The positive link between past and current outcomes was due to the fact that bounded rationality leads to a representation of choice as a semi-automatic process that is informed by the past and operates in the present (Cyert & March, 1963; Helfat, 1994; Lages et al., 2008; Chung et al., 2019). Furthermore, past outcome also provides a historical perspective, which is characterised by its ability to provide insights into the sustainability of such performance (Gavetti, et al., 2012). The results confirm that past performance is derived from past choices and initiatives, where firms distinguish between positive and negative outcomes, repeating the positive actions and eliminating the negative (Amit & Shoemaker 1993; Day, 1994; Eisenhardt & Martin, 2000). For these reasons, the findings of this study provide theoretically-founded contributions to the extant literature related to past export performances (being also an important antecedent of firm capabilities).

Given the increased tendency towards the globalisation of the world's markets, export involvement becomes of crucial importance for firms' survival and growth and adaptation strategies have a significant influence on the relationships between firm capabilities and export performance. The debate regarding whether firms should adapt or standardise their activities and processes, from both a theoretical and empirical perspective, represents a key issue for achieving successful and sustained export results (e.g., Sousa et al., 2008; Stoian et al., 2011; Theodosiou & Leonidou, 2003; Cavusgil, Zou & Naidu, 1993). In light of the findings of this empirical investigation, successful export performance could be achieved by employing a more adapted or flexible strategy overall. However, the disaggregated results show that firms operating in low R&D intensity industries should on the whole deploy a standardisation strategy. Levels of adaptation should not be seen, in isolation or as pure strategies, but rather should be regarded from an organisational learning perspective which suggests a balancing on the continuum of levels of adaptation (Szymanski et al., 1993; Dow, 2007; Sousa et al., 2014; Cavusgil & Zou, 1994). Thus, directing efforts to reach the optimal fit between the levels of adaptation (standardisation/adaptation) on the one hand, and the particular organisational and contextual factors on the other hand, firms are able to achieve successful levels of export performance (e.g., Miles et al., 1978; Theodosiou & Leonidou, 2003; McKee, Varadarajan & Pride, 1989). Hence, this study contributes to the extant

literature by showing that a firm's adaptation strategy is an important moderator of the relationship between its capabilities and export performance as measured in the case of Caribbean export manufacturers.

The study also adopted an element of RBV theory by establishing the link between firm capabilities and current export performance. The extant literature largely uses aspects of firm-based resources as key antecedents of export performance (see Madsen, 1987; Aaby & Slater, 1989; Zou & Stan, 1998; Sousa et al., 2008). Only a limited number of authors used firm capabilities, defined as the source of firm's competitive advantage, as drivers of export performance (Kaleka, 2011; Leonidou, Palihawadana & Theodosiou, 2011). Where they have done so, authors used individual areas of advantage such as marketing capabilities or information-based capabilities (e.g., Vorhies, Orr & Bush, 2010; Ferreira & Simões, 2016).

This study broadened the scope of capabilities by investigating the effects of information technology, market linking, marketing and technology capabilities on current export performance collectively. The findings corroborate RBV theory with results showing that aggregated firm capabilities have a positive and significant impact on current export performance. In the case of Caribbean manufacturers, an empirical context not yet studied by the literature, only marketing capabilities were shown to have a significant and positive impact on current export performance with technology and market linking capabilities yielding positive but non-significant results and information technology returning an unanticipated negative impact. The contribution to RBV theory is quite significant in that it shows firm capabilities are an important driver of export performance but that the area(s) of competitive advantage contributing to this positive influence on performance may vary from say marketing capabilities, as was the case for this study, to market linking capabilities which was noted elsewhere in the literature (Lilien et al., 2011; Krasnikov & Jayachandran, 2008; DeSarbo et al., 2006 Vorhies & Morgan, 2005). Therefore it is important to incorporate multiple functional capability areas in future research to identify the functional business areas that contribute to export performance.

A further contribution is that firm capabilities on the whole may have a positive impact on export performance even though individual areas of advantage do not exert a significant and positive influence on performance. This was the case for firms operating in low R&D intensity industries. One possible explanation is that, overall, firm capabilities are more than the sum of their parts with the interaction of less than positive

individual areas of competitive advantage producing significant influence of export performance. In other words, the synergies between the firms' functional capabilities can increase their effectiveness and efficiency and thus have a positive effect on performance (Mu & Di Benedetto, 2011; Sirmon, Ireland, & Gilbert, 2011). For example, Song et al., (2005) found that marketing and technology-related capabilities interact to positively influence firm performance and this synergistic effect in performance can be substantive in some environment. Indeed, one of the most valuable characteristics of firm capabilities may be their ability to serve as flexible strategic options (Day, 1994; Barney, 1991; Moorman & Slotegraat, 1999; O'Cass & Sok 2012). This study contributes to the literature by providing evidence that supports the notion of the complementarity functional business areas.

The study also makes a contribution for the call for more granular analysis of export performance research. Results are largely viewed as a whole and are not broken down into subgroups to determine whether differences between varying groups of firms exist (Sousa et al., 2011). This is a challenge that is particularly acute in the use of cross-sectional data when explaining possible relationships between variables because it is based on the assumption that variations between variables over time and/or between cases are constant (e.g. Bowen & Wiersema, 1999). The multiple group analysis conducted for this study show that it is worthwhile to conduct this more detailed analysis return as clear trait differences between groups of firms operating in low R&D and medium-high R&D intensity industries.

Finally speaking to the geographical gaps that remain in the study of export performance especially in parts of Africa, Asia and in the Caribbean, this study in certainly adds to the scare body of literature in this area (Chen et al., 2016; Lages & Montgomery, 2005). The results enables scholars to apply current scales and test relationships on firms based in countries which are not in the traditional more advanced economies. Sousa et al., (2008; p 346)) indicated that "there is a void in the literature, as certain parts of Asia, South and Central America, the Caribbean and Africa have received little or no attention from researchers". The results contributes to the international business literature by broadening the generalisability of export performance research. The results shows how the establishing theory in export performance applies to firms that operate in small island developing states like those found in the Caribbean.

7.2.2 Methodological contribution

The methodological contribution speaks to a more comprehensive conceptualisation and operationalisation of export performance. First, the study deployed the first (as far as the author is aware) mediated moderated model to explain export performance. This methodological approach was made possible due to the advances in multivariate techniques such as SEM (Hair et al., 2014). While the international business strategy literature revealed that some studies considered the moderating effect of variables on export performance and in some even fewer cases their mediating effects, this study has gone as far as simultaneously determining the moderating and mediating effects of firm capabilities and adaptation strategy on current year export performance (Sousa et al., 2008; Chung et al., 2019). This contribution pushes the methodological and analytical boundaries in the investigation of export performance as presently carried out in the international business strategy literature. Future researchers can used the approach deployed in this study to provide greater insight into the interaction effects as well as causal relationships that exist between independent variables and export performance; a point that was also made by Lages and Montgomery (2001), Sousa et al. (2008) and indeed was noted in this systematic literature review.

Second, this study contribute to the revealed gap in the study of export performance with regard to the absence of multiple group analysis to yield a more granular analysis of the data. In the international business strategy literature studies present results that are largely viewed as a whole and do not investigate variation in data by subgroups to determine whether there are trait differences between varying groups of firms. This absence is particularly acute in the use of cross-sectional data since it is based on the assumption that variations between variables over time and/or between cases are constant (e.g., Bowen & Wiersema, 1999; Sousa et al., 2008). This study shows that invariant samples can unearth trait differences between sub groups of firms as was the cases here between firms operating in low R&D intensity industries and those operating in medium-high intensity industries (Amemiya, 1994). Future researchers can deploy the techniques used in this study to carry out more granular analysis of export performance.

Third, the sample included firms that were based in different countries. While these countries possessed very similar international trade policies as they are members of the Caribbean community CSME, some differences do persist. This methodological approach therefore enhances the generalisability of the findings across the international business strategy literature and in particular among firms operating in Small Island Developing

States (Lages & Montgomery, 2001; Sousa et al., 2008; Chung et al., 2019). The findings show that the conceptualisation and operationalisation of export performance framework across multiple countries is a viable option for future researchers. In other words this study paves the way for more cross-country studies in export performance, which are currently very limited in scope and application.

7.2.3 Managerial Implication

The model presented in this study helps managers to systematise the complex export phenomenon and, simultaneously, help to improve their expertise and enhance their ability to protect and perform better in foreign markets. First, the results suggest that firm capabilities and current year export performance in the short term are strongly influenced by firms' past export performance levels. This suggests that it is important for firms to closely monitor and accommodate any unsatisfactory past outcomes and where necessary managers should look to adopt a clear and robust adaptation strategy in order to sustain their export venture (Kungwansupaphan & Siengthai, 2014; Brouthers et al., 2009; Li et al., 1999; Nguyen & Nguyen, 2010). By better understanding the influence of past export performance on firms operating internationally and making the appropriate co-alignment with the internal and external context of the export venture, managers can avoid the repetition of unsatisfactory export performance (Schmidt & Sofka, 2009; Stoian et al., 2011). Managers should also note that real involvement in export markets will affect positive assessment of this activity and its outcomes, reinforcing future decisions in export activity and overall long-term survival in same (Westhead, Wright & Ucbasaran, 2001; Zaheer, 1995).

Second, the results suggest that export performance is strongly influenced by firms' capabilities but none more so than their marketing capabilities. Therefore, taking decisions directed to increase the actual level of a firm's marketing capabilities in the exporting area will have a significant influence on export performance (Krasnikov & Jayachandran, 2008; Vorhies & Morgan, 2005). Managers should be conscious that a fundamental role in achieving superior export performance would be significantly dependent on a firm's marketing capabilities (Morgan, Vorhies, & Mason, 2009). Marketing capabilities act as particularly important driver of performance for Caribbean manufacturers that operate in emerging markets, their most competitive markets. Additionally, managers of firms operating in medium-high R&D intensity industries sectors would need to adopt robust marketing strategies. These strategies would need to be flexible to environmental change even though their adaptation or standardisation

would again depend on internal and external factors and the optimal co-alignment of firms' resources and other capability areas. The key elements of marketing capabilities that managers need to consider are: those patterning to individual 'marketing mix' processes, such as product development and management, pricing, selling, marketing communications, and channel management (Vorhies & Morgan, 2005); and competences that are concerned with the processes of marketing strategy development and execution (Morgan et al., 2004).

Third, managers should be aware of the possible negative impact of information technology capabilities on export performance. This could be as a result of Caribbean manufacturers having scarce resources, being relatively small and as such not really investing the time and money into formal integrative data architectures (Dhungana, 2003). Managers should also be aware of other possible reasons such their IT architecture being relatively simple, and as they are not indispensable for performance, they could lag in terms of upgrades (Zhang et al., 2013). It is not beyond the imagination to have circumstances where IT resources that were once valuable to a firm becoming rendered obsolete and create competitive disadvantage rather than advantage (Bharadwaj, 2000). Furthermore IT capabilities are also dependent to a large part on the telecommunication infrastructure of the country and support skills where they are based (Dhungana, 2003) so inadequacies in those could affect the role IT capabilities play in business export performance. Managers may not have the resources to really invest in state of the art information technology nor are they necessary for day to day operations in some cases, but they should develop policies to help dampen this adverse impact of information technology on export performance. Over the last two decades information technology (IT) outsourcing has grown dramatically, and has emerged as a strategic choice for firms searching for ways to control their costs and maintain a competitive edge. Where possible managers should consider this option (Man, Folch, Kauffman & Anselin, 2015).

Fourth, the results indicate that managers should focus on the functional capabilities that are more likely to drive superior export performance. Though important, the literature reveals that concentrating on firm resources and competences can only yield conflicting results when it comes to export success (Aaby & Slater, 1989; Zou & Stan, 1998; Sousa et al., 2008; Chen et al., 2016). Managers should ensure that they identify the key areas of competitive advantage or disadvantage (e.g., market linking, information technology, marketing and technology) that have the greatest impact on current export

performance as these will have a unique influence on the structuring of the export venture (Eisenhardt & Martin, 2000; DeSarbo, Di Benedetto & Song, 2008).

Furthermore when marketing capabilities is the strongest driver of advantage, export managers should work to structure their export activities around that strength (Griffith & Dimitrova, 2014). By structuring internal relationships in this manner, export managers can create the optimum business environment in which to operate (Kropp et al., 2006; Amit & Shoemaker, 1993; Day, 1994). Firms should work to educate export managers about the business environment in which they operate but crucially help them identify their areas of advantage, which should help enhance the structure of the firm for export success. For example, managers can use methodologies that unearth linking mechanism between assets, resources, capabilities, competencies, and core competencies (e.g., Archibugo & Coco, 2004; Hafeez, Zhang & Malak, 2002). This approach would help identify core competencies by isolating unique and flexible capabilities of the firm.

7.2.4 Policy implications

The study reveals implications for policy makers generally and for those manufacturers operating in the Caribbean region more specifically. Past research suggest that long-term success is founded on the ability of firms to not only learn when faced with environmental changes, but also to adapt continuously in the short term, even when the firm is performing well (Sinkula et al., 1997). Given the findings of this study, policy makers should develop global initiatives to help manufacturers sustain their export competitiveness over the longer term. While these initiatives should meet both short-term and long-term goals (e.g., March, 1991), policy makers should outline the benefits for exporters by continuously learning from their international markets. This information should be used to refine their existing knowledge of these markets and help them effect changes in practices to attain superior performance, where necessary (Dickson, 1996; Fiol & Lyles, 1985). Where that is not already the case, policy makers can create a centralised information or intelligence repository for exporters while at the same time encouraging them to adapt their activities, where necessary, to sustain their export ventures. In the case of the Caribbean, governments with assistance from the European Union have already set up an organisation (called Carib Export) to help promote trade. The remit for Carib Export should be extended to include a sustainability of export competitiveness division for firms operating in the region. This would concentrate on improving the ability of firms to learn from past outcomes, and to develop their adaptation skills and competences.

Marketing capabilities were shown to be the most important capability-based driver of export performance. Policy initiatives should aim to enhance the marketing skills and competences of key decision makers to enable firms to formulate and put into practice successful international marketing strategies. Thereby, the promotion of marketing skills and competences which are already pursued in both schools/universities and workplaces should receive increased and continuous policy support in order to furnish future decision makers to have the right skills and competences to augment and sustain their international export propensity. Government can also consider developing a vertical industrial policy aimed at promoting particular industries or firms (Archibugi & Coco, 2004; Beason & Weinstein, 1996; Amsden, 1989; Rodrik, 2004). The industrial policy could include possible remedies for the potential disadvantage derived from firms' information technology capabilities and for firms operating in low R&D intensity industries. Examples of industrial policy mechanisms include differential tax breaks or subsidised credit programs to stimulate exports or prompt investments in certain industries and regions (Lazzarini, 2013).

7.2.5 Limitations and Suggestions for Further Research

Although this study provides a number of new insights, it is important to note its limitations. The future research directions will be addressed in the context of, and as extensions to, the limitations. First, this study employed a cross-sectional survey method, and therefore suffers from the common limitations of the method such as its cross-sectional design (MacKenzie & Podsakoff, 2012). Although the study attempted to capture the dynamics of the exporting phenomenon by focusing each question on specific time periods, thus building in a logical progression, the study is cross-sectional. Future research should seek to overcome this limitation by employing approaches that collect and analyse long-term or time series data. Second, the research context limits the findings. The fact that the research context involved only firms operating in the English-speaking Caribbean may limit the generalisability of the results to some degree. However, small island states in situations similar to that of the Caribbean may also benefit from these findings since most of the research into the export performance of firms are conducted in richer countries (Chen et al., 2016; Sousa et al., 2008). Third, firm capabilities could have been conceptualised differently, that is other than market linking, information technology, marketing and technology capabilities to explore how other areas of firm capabilities could individually influence export performance. Fourth, this study is based on self-reported survey data (i.e., Subjective performance data). Despite the clear advantages of

such method and type of data, further research should seek to gain access into objective data (Zou & Stan, 1998). This would allow capturing actual manifestations of performance rather than personal reflections of these manifestations.

Extending beyond the limitations, this study provides a foundation for significant research endeavours to advance the field. For example, this study has shown the empirical link between past export performance, firm capabilities, adaptation strategy and current year's export performance. However, research still needs to investigate this link systematically and thoroughly. As stated by Sinkula et al. (1997: 308), ''the extent to which organizations are able to store and access past lessons of history will affect their ability to maintain a steady pace of long-term learning that continuously builds from the past.'' By considering how strategy is affected in the short term, this study provides insight into the building blocks of long-term learning and its role in sustaining competitive advantage (March, 1991; Wang, Senaratne, & Rafiq, 2015). In the short term, satisfaction with export performance tends to be perpetuated, so that negative past performance satisfaction leads to negative current performance satisfaction, and vice versa (Lages et al., 2008). The findings from this study also show that it is possible through firms' capabilities and their short term adaptation to break a negative cycle. However, is it possible that a more granular look at adaptation strategies could unearth greater or lesser effective aspects of marketing mix, production or technology activities?

A final possibility to extend this work further is to reconsider the conceptual framework. The conceptual model presented here builds on key studies in international business literature to generate a conceptual framework. Necessarily, the number of capabilities-based antecedents is small and finite, and other antecedents and outcomes of export performance may need to be explored in future research. As empirical research aiming to validate these relationships is only emerging, scholars should seek to further validate the relationships that link past export performance, firm capabilities, adaptation strategy and current export performance. More specifically, studies could look to explain how positive or negative components of past performance individually affect firm capabilities and their adaptation and current year export performance (e.g., Lages et al., 2008; Chen, Sousa & He, 2016; Ramsey et al., 2016; Chung et al., 2019). It is hoped that findings from this study will encourage future researchers to continue to reflect on the importance of the links that exist between past export performance, firm capabilities, adaptation strategies and current export performance, as practitioners and policy makers look for approaches to sustain export performance. In addition, it may also be advisable

to carry out similar investigations within various industries, separately, as well as to differentiate the results obtained according to specific overseas market served.

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APPENDICES

Appendix 1 Industries within R&D Intensity Industries

High-technology industries

Aircraft and spacecraft
Pharmaceuticals
Office, accounting and computing machinery
Radio, TV and communications equipment
Medical, precision and optical instruments

Medium-high-technology industries

Electrical machinery and apparatus, n.e.c[12].
Motor vehicles, trailers and semi-trailers
Chemicals excluding pharmaceuticals
Railroad equipment and transport equipment, n.e.c.
Machinery and equipment, n.e.c.

Medium-low-technology industries

Building and repairing of ships and boats
Rubber and plastics products
Coke, refined petroleum products and nuclear fuel
Other non-metallic mineral products

Low-technology industries

Manufacturing, n.e.c.; Recycling
Wood, pulp, paper, paper products, printing and publishing
Food products, beverages and tobacco
Textiles, textile products, leather and footwear

[12] Not elsewhere classified

Appendix 2 Questionnaire

Informed Consent

The impact of past performance, firm capabilities and adaptation strategies on export performance: the case of Caribbean manufacturers

What is the purpose?
The study aims to examine the effects of business capabilities and learning on the export performance of Caribbean manufacturers.

Who is undertaking the research and in what capacity?
This study is being undertaken by Mr Glenworth Joseph. Glenworth is a doctoral candidate at Birkbeck, University of London.

Who is being asked to participate?
The target audience for this study are export manufacturers located in the English speaking Caribbean. These are Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Lucia, St. Christopher and Nevis, St. Vincent and the Grenadines, and Trinidad and Tobago.
I obtained your contact details from your local manufacturer association and/or chamber of commerce. The Caribbean Export Development Agency provided me with a list of these institutions. As a result of the relatively small number of export manufacturers in the region, I will be contacting all companies. This is to enable me to achieve as high a response rate as possible.

What type of information is being collected?
The information being gathered is largely subjective, that is, you will be asked about your views on your firms' capabilities, learning and export performance. The last section of the questionnaire will ask some questions about the characteristics of your firm.

How will it be collected?
Participants are asked to complete an online survey. In a limited number of cases, participants will be handed a paper-based questionnaire to be collected at an agreed future date.

How much time will be required?
The questionnaire will take about 15 minutes to complete.

What are the target dates?
January to April 2016

What are the consequences or possible risks of taking part?
Participation in this survey is completely voluntary. If you choose to take part you will need to agree to the consent form which accompanies the survey. You are able to end your participation at any time as well as withdraw any data or information you may have already provided up until it is used in the final report and articles.

Who will have access?
Only individuals with direct link to the study will have access to your anonymised information.

How will the data be presented?
The results or data from the survey will only be presented in aggregated form. This means that individual comments will not be presented in the report or publications. In the event that data on subgroups of participants are used, they will contain a minimum of 30 cases to both ensure statistical robustness and maintain anonymity.

How will the results be disseminated?
The results from study will be disseminated through Glenworth's PhD thesis, journal articles, conferences, seminars and workshops.

What assurance can be provided about anonymity and data confidentiality?
The survey instrument will not ask for respondents' names. It will only ask for company name, but that information will only be used to ensure that reminder emails are not sent to individuals who have already responded. The company name will be excluded from the dataset used for analysis. In order to further preserve anonymity, the results will be presented in aggregated form or reported on as a group. Where there are subgroups, they will contain no fewer than 30 cases as indicated above. Apart from this being the statistical robust approach, a small number of individuals in any grouping can risk individual firms being identified due to their unique set of circumstances (e.g., a combination of their location, size and sector).
All information collected during the course of this study will be kept strictly confidential. Information will be stored on a password-protected computer and data file. All personal information such as company name and any other revealing comments made in the open questions will be removed from the data file and will not be shown to anyone outside of the study project team. When the results of the study are published, no references will be made to individual companies.

What will happen to the data after the project is completed?
The data from the study will be preserved beyond the end of this project for the purpose of future analyses and publications. After ten years, a review will be conducted to determine whether they remain valid and if not, securely destroyed. During this time, the unanalysed or raw data will not be shared with anyone outside the research group.

Where data are to be preserved?
The data will be stored on Birkbeck, University of London servers and Glenworth's personal computer and storage devices. Files will be password protected at all time.

What are your rights?
Participation in this study is voluntary. You can withdraw from the process at any time including asking for your data/information to be deleted from the study up until it is used in the final thesis report and articles.

Who do I contact if I have a question?
In the event of any questions, please contact Glenworth Joseph by email:
gjosep05@mail.bbk.ac.uk.

Consent Form

Department of Management

Please read the following before participating in this research:

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions.

I agree to provide information to the researcher(s) on the understanding that my name will not be used without my permission. (The information will be used only for this research and publications arising from this research project.)

I agree/do not agree to the interview being taped.

I agree/do not agree to the interview being video-taped.

I understand that I have the right to ask for the audio/video tape to be turned off at any time during the interview.

I agree to participate in this study under the conditions set out in the Information Sheet

Signed by:

Thank you for your interest in participating in this survey.

Questionnaire

To confirm that you have read the terms detailed in the email requesting your participation and agree to participate, check AGREE to BEGIN. If not DISAGREE to TERMINATE.

O AGREE
O DISAGREE

SECTION 1

Q1. How would you assess your company's capabilities in regard to the following aspects of your export activities compared with your main competitors? Please indicate your answer using a 7 point scale, **where 1 is much worse than your main competitors and 7 much better. SELECT ONE ONLY FOR EACH**

Part A: Market Linking Capabilities [Section headings were not included in online version]

	Much worse						Much better
Generating knowledge about consumers, competitors and channel members for decision making	1	2	3	4	5	6	7
Creating and managing durable customer relationships	1	2	3	4	5	6	7
Creating durable relationships with your suppliers	1	2	3	4	5	6	7
Retaining regional/international customers	1	2	3	4	5	6	7
Creating durable relationship with channel members such as wholesalers and retailers	1	2	3	4	5	6	7
Creating durable relationships with intermediaries such as export management companies and government institutions	1	2	3	4	5	6	7

Part B: Technology Capabilities [Section headings were not included in online version]

	Much worse						Much better
New product development	1	2	3	4	5	6	7
Manufacturing processes	1	2	3	4	5	6	7
New technology development	1	2	3	4	5	6	7
New technology acquisition	1	2	3	4	5	6	7
Prediction to changes in technology in your industry	1	2	3	4	5	6	7
Production facilities	1	2	3	4	5	6	7
Quality controls	1	2	3	4	5	6	7

Part C: Marketing Capabilities

	Much worse						Much better
Knowledge of international competitors	1	2	3	4	5	6	7
Knowledge of foreign (export) customers	1	2	3	4	5	6	7
Monitoring competitive products in export markets	1	2	3	4	5	6	7
Integration of marketing activities	1	2	3	4	5	6	7
Segmentation and targeting of regional/international markets	1	2	3	4	5	6	7
Effectiveness of international (export) pricing programs	1	2	3	4	5	6	7
Effectiveness of export promotional activities	1	2	3	4	5	6	7

Part D: Information Technology (IT) Capabilities

	Much worse						Much better
IT systems for new product development projects	1	2	3	4	5	6	7
IT systems for facilitating cross-functional integrations such as finance, marketing, operations and/or human resources	1	2	3	4	5	6	7
IT systems for facilitating market knowledge creation (i.e., systems used to synthesise market information into knowledge)	1	2	3	4	5	6	7
IT systems for internal communication (e.g., across departments and different levels of the organisation)	1	2	3	4	5	6	7
IT systems for external communications (e.g., suppliers, customers and channel members)	1	2	3	4	5	6	7

SECTIONS 2

Part F: Levels of Adaptation

Q2. In the past three years, to what extent, if at all, has your company adapted the following aspects of your business activities and processes to help enhance your export performance?

Please indicate your answer using a 7 point scale, **where 1 is extensive adaptation and 7 is no adaptation. SELECT ONE ONLY FOR EACH**

	Extensive adaptation						No adaptation
Manufacturing processes	1	2	3	4	5	6	7
Quality controls	1	2	3	4	5	6	7
Product(s)	1	2	3	4	5	6	7
Price	1	2	3	4	5	6	7
Promotions	1	2	3	4	5	6	7
Distribution channels	1	2	3	4	5	6	7
Knowledge generation activities	1	2	3	4	5	6	7
Behaviour which help strengthen relationship with business partners	1	2	3	4	5	6	7
IT systems for measuring performance	1	2	3	4	5	6	7

SECTION 3

Part G: Export Performance

Q3. Please indicate your perceptions of the following aspects of your export ventures at the end of your last financial year?

Please indicate your answer using a 7 point scale, **where 1 not at all satisfied and 7 extremely satisfied. SELECT ONE ONLY FOR EACH**

	Not at all satisfied				Extremely satisfied		
Export profitability	1	2	3	4	5	6	7
Export sales growth	1	2	3	4	5	6	7
Export market share	1	2	3	4	5	6	7
Entry to key markets	1	2	3	4	5	6	7
Performance of export venture(s)	1	2	3	4	5	6	7

Q4. Please answer the same question for the financial year ending 2012 or when you started exporting, if shorter?

Please indicate your answer using a 7 point scale, **where 1 is much less satisfied now than in 2012 and 7 much more satisfied.** **SELECT ONE ONLY FOR EACH**

	Much less satisfied						Much more satisfied
Export profitability	1	2	3	4	5	6	7
Export sales growth	1	2	3	4	5	6	7
Export market share	1	2	3	4	5	6	7
Entry to key markets	1	2	3	4	5	6	7
Performance of export venture(s)	1	2	3	4	5	6	7

Q5. For the last financial year, what results did your company achieve for the following indicator? **SELECT ONE ONLY**

	<5%	5 – 10%	11 – 20%	21 – 30%	31 – 40%	41 – 50%	>50%
Export as a proportion of total sales	1	2	3	4	5	6	7

SECTION 4

Part H: Background Information

The following questions are about you and your company.

Q6. Please provide job title and company's name. **WRITE IN BELOW**

Job title

Company name

Q7. What are your key export responsibilities? **WRITE IN BELOW**

Q8. How long has you company been involved in regional/international trade? **SELECT ONE ONLY**

Less than 5 years 6 – 10 years 11 – 15 years More than 15 years

Q9. How many people does your company employ? **SELECT ONE ONLY**

Fewer than 10 10 – 19 20 – 49 50 – 99 100-249 Over 250

Q10. What is your annual turnover? **SELECT ONE ONLY**

Less than US$100,000	100,000 – 499,000US$ million	500,000 – 1 US$ million	1 – 5 US$ million	5 – 10 US$ million	Over US$10 million

Q11. Compared with your largest competitors in your export markets, how would you rate your company on a scale from 1 to 7, **where 1 is very small and 7 is very large**?
SELECT ONE ONLY FOR EACH

	Very small						Very large
Regionally (i.e., within the Caribbean)	1	2	3	4	5	6	7
Internationally	1	2	3	4	5	6	7

Q12. In which country are you based? **WRITE IN**

Q13. Please indicate the number of countries to which you export

1 – 5	6-10	11-20	More than 20

Q14. Where are your export markets located? **SELECT ALL THAT APPLY**

Caribbean	Central and South America	North America	Europe	Africa	Rest of world

Q15. Which of the following best describes your industry? **SELECT ALL THAT APPLY**

Food	1
Tobacco	2
Textiles	3
Garments	4
Leather	5
Wood	6
Paper	7
Refined petroleum product	8
Chemicals	9
Plastics & rubber	10
Non-metallic mineral products	11
Basic metals	12
Fabricated metal products	13
Machinery and equipment	14
Electronics	15
Precision instruments	16
Furniture	17
Recycling	18
Other (Specify)	95

Part H: Request for Information

If you would like a summary copy of the findings, please provide your details below.

Name

Job title

Email

Telephone

Appendix 3 Questionnaire Feedback Form

Please answer the following questions. Your comments will be useful in helping improve the questionnaire. If you wish to provide verbal feedback instead of writing, do not hesitate to contact me on the telephone number provided below or send me your contact details and I will call you.

1. How many minutes did it take you to complete the questionnaire?

2. Do you think the content of the questionnaire is relevant to your organisation and to your industry?

Yes No

If the answer to the above question is 'No', please explain which items need improving

3. Did you have any difficulties in understanding the meaning of the questions?

Yes No

If the answer to the above question is 'No', please explain which items need improving

4. Were you able to read the questions effortless from beginning to end?

Yes No

If the answer to the above question is 'No', please explain which items need improving

5. If you have any suggestions that would help improve the questionnaire please write them below?

Appendix 4 Non Response Bias Test

Time (early/late – cut off was March 25th 2016) by Sample characteristics

T-Test

Group Statistics

	time	N	Mean	Std. Deviation	Std. Error Mean
Q5	Early	130	2.82	1.96	0.17
	late	166	3.25	2.10	0.16
Q9	Early	130	3.57	1.59	0.14
	late	166	3.20	1.67	0.13
Q10	Early	130	2.66	1.61	0.14
	late	161	2.56	1.68	0.13
Q11a	Early	130	4.53	1.75	0.15
	late	166	4.40	1.93	0.15
Q13	Early	130	1.79	0.94	0.08
	late	166	1.72	0.95	0.07
Q3/5	Early	129	4.43	1.75	0.15
	late	166	4.36	1.74	0.14
Q8	Early	130	3.24	1.153	0.10
	late	166	2.99	1.24	0.10

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
Q5	Equal variances assumed	1.45	.230	-1.81	294	.072	-0.43	0.24	-0.90	0.04
	Equal variances not assumed			-1.82	284.77	.069	-0.43	0.24	-0.89	0.03
Q9	Equal variances assumed	0.41	.524	1.93	294	.054	0.37	0.19	-0.01	0.75
	Equal variances not assumed			1.94	282.77	.053	0.37	0.19	-0.01	0.75
Q10	Equal variances assumed	0.75	.386	0.53	289	.598	0.10	0.19	-0.28	0.49
	Equal variances not assumed			0.53	280.83	.596	0.10	0.19	-0.28	0.48
Q11a	Equal variances assumed	1.51	.220	0.61	294	.540	0.13	0.22	-0.29	0.56
	Equal variances not assumed			0.62	287.51	.535	0.13	0.22	-0.29	0.56
Q13	Equal variances assumed	1.10	.295	0.63	294	.531	0.07	0.11	-0.15	0.29
	Equal variances not assumed			0.63	279.02	.530	0.07	0.11	-0.15	0.29
Q3/5	Equal variances assumed	0.10	.757	0.38	293	.701	0.08	0.21	-0.32	0.48
	Equal variances not assumed			0.38	274.04	.701	0.08	0.21	-0.33	0.48
Q8	Equal variances assumed	2.70	.101	1.78	294	.076	0.25	0.14	-0.03	0.53
	Equal variances not assumed			1.80	285.07	.073	0.25	0.14	-0.02	0.53

Appendix 5 Firm Characteristics

International experience

		Frequency	Percent	Valid Percent	Cumulative Percent
	Less than 5 years	55	20.1	20.1	20.1
	6 – 10 years	40	14.6	14.6	34.7
	11 – 15 years	23	8.4	8.4	43.1
	More than 15 years	156	56.9	56.9	100.0
	Total	274	100.0	100.0	

*Average = 11 – 15 years

Number of staff

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fewer than 10	50	18.2	18.2	18.2
	10 – 19	34	12.4	12.4	30.7
	20 – 49	44	16.1	16.1	46.7
	50 – 99	66	24.1	24.1	70.8
	100-249	48	17.5	17.5	88.3
	Over 250	32	11.7	11.7	100.0
	Total	274	100.0	100.0	

*Average = 50 – 99 employees

Turnover

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than US$100,000	103	37.6	38.1	38.1
	100,000 – 499,000US$ million	40	14.6	14.8	53.0
	500,000 – 1 US$ million	40	14.6	14.8	67.8
	1 – 5 US$ million	48	17.5	17.8	85.6
	6 – 10 US$ million	15	5.5	5.6	91.1
	Over US$10 million	24	8.8	8.9	100.0
	Total	270	98.5	100.0	
Missing	System	4	1.5		
Total		274	100.0		

*Average = 500,000 – 1 US$ million

Sectors

	N	Percent
Food	123	39.7
Chemical	39	12.6
Non metallic	19	6.1
Textile	18	5.8
Garment	16	5.2
Paper	13	4.2
Refine petroleum	12	3.9
Fabricated metallic	12	3.9
Plastrubber	10	3.2
Basic metallic	10	3.2
Machine equip	10	3.2
Furniture	6	1.9
Leather	5	1.6
Wood	5	1.6
Tobacco	3	1.0
Electronics	2	0.6
Other	7	2.3
Total	310	100.0

Market types

	Frequency	Percent	Valid Percent	Cumulative Percent
Emerging	196	71.5	71.5	71.5
Developed	78	28.5	28.5	100.0
Total	274	100.0	100.0	

Number of export markets

	Frequency	Percent	Valid Percent	Cumulative Percent
1 – 5	136	49.6	50.7	50.7
6-10	75	27.4	28.0	78.7
11-20	40	14.6	14.9	93.7
More than 20	17	6.2	6.3	100.0
Total	268	97.8	100.0	
Missing	6	2.2		
Total	274	100.0		

*Average = 6 – 10 countries

Export Markets

	N	Percent
Caribbean	262	53.5
C & S America	77	15.7
N America	67	13.7
Europe	47	9.6
Africa	10	2.0
Rest of world	27	5.5
Total	490	100.0

Country where based

		Frequency	Percent	Valid Percent	Cumulative Percent
	Antigua	5	1.8	1.8	1.8
	Barbados	34	12.4	12.5	14.3
	Belize	4	1.5	1.5	15.8
	Dominica	1	.4	.4	16.1
	Grenada	9	3.3	3.3	19.4
	Guyana	3	1.1	1.1	20.5
	Jamaica	68	24.8	24.9	45.4
	St. Kitts	4	1.5	1.5	46.9
	St. Lucia	27	9.9	9.9	56.8
	St. Vincent	5	1.8	1.8	58.6
	Trinidad & Tobago	112	40.9	41.0	99.6
	Most of CARICOM	1	.4	.4	100.0
	Total	273	99.6	100.0	
Missing	System	1	.4		
Total		274	100.0		

Level of Technology		Frequency	Percent	Valid Percent	Cumulative Percent
	Low tech	161	58.8	60.1	60.1
	Medium to high	107	39.1	39.9	100.0
	Total	268	97.8	100.0	
Missing	System	6	2.2		
Total		274	100.0		

Export contribution to total sales	Frequency	Percent	Valid Percent	Cumulative Percent
<5%	66	24.1	24.1	24.1
5 – 10%	74	27.0	27.0	51.1
11 – 20%	40	14.6	14.6	65.7
21 – 30%	30	10.9	10.9	76.6
31 – 40%	15	5.5	5.5	82.1
41 – 50%	10	3.6	3.6	85.8
>50%	39	14.2	14.2	100.0
Total	274	100.0	100.0	

*Average = 11 – 20%

Appendix 6 Observed Variables and Codes

Variables	All items	After re-specification
Generating knowledge about consumers, competitors and channel members for decision making	mktlk1	mktlk1
Creating and managing durable customer relationships	mktlk2	mktlk2
Creating durable relationships with your suppliers	mktlk3	mktlk3
Retaining regional/international customers	mktlk4	mktlk4
Creating durable relationship with channel members such as wholesalers and retailers	mktlk5	mktlk5
Creating durable relationships with intermediaries such as export management companies and government institutions	mktlk6	
New product development	tech1	tech1
Manufacturing processes	tech2	tech2
New technology development	tech3	tech3
New technology acquisition	tech4	tech4
Prediction to changes in technology in your industry	tech5	tech5
Production facilities	tech6	
Quality controls	tech7	
Knowledge of international competitors	mkting1	mkting1
Knowledge of foreign (export) customers	mkting2	
Monitoring competitive products in export markets	mkting3	mkting3
Integration of marketing activities	mkting4	mkting4
Segmentation and targeting of regional/international markets	mkting5	mkting5
Effectiveness of international (export) pricing programs	mkting6	mkting6
Effectiveness of export promotional activities	mkting7	
IT systems for new product development projects	it1	it1
IT systems for facilitating cross-functional integrations such as finance, marketing, operations and/or human resources	it2	it2
IT systems for facilitating market knowledge creation (i.e., systems used to synthesise market information into knowledge)	it3	it3
IT systems for internal communication (e.g., across departments and different levels of the organisation)	it4	it4
IT systems for external communications (e.g., suppliers, customers and channel members)	it5	it5
Manufacturing processes	adapted1	
Quality controls	adapted2	adapted2
Product(s)	adapted3	adapted3
Price	adapted4	adapted4
Promotions	adapted5	adapted5
Distribution channels	adapted6	adapted6
Knowledge generation activities	adapted7	
Behaviour which help strengthen relationship with business partners	adapted8	
IT systems for measuring performance	adapted9	
Export profitability	experfc1	experfc1
Export sales growth	experfc2	experfc2
Export market share	experfc3	experfc3
Entry to key markets	experfc4	experfc4
Performance of export venture(s)	experfc5	experfc5
Export profitability	experfp1	experfp1
Export sales growth	experfp2	experfp2
Export market share	experfp3	experfp3
Entry to key markets	experfp4	experfp4
Performance of export venture(s)	experfp5	experfp5

Appendix 7 Ethics Form, Consent form and Information Sheet

Ethical Review Form

Department of Management

Student name:	**Glenworth Joseph**
Student number:	**13015025**
Supervisor:	**Prof Kevin Ibeh and Dr Rebecca Bednarek**
Programme:	**MPhil/PhD Management**
Project title:	**The effects of firm capabilities and organisational learning on export performance: the case of Caribbean manufacturers**

Attachments:

- *Information Sheet*
- *Consent Form*
- *Questionnaire*

Description and justification of proposed project:

In the period since independence, governments across the Caribbean have been searching for development models that would help deliver high economic growth and improved living standards for citizens. Irrespective of the models deployed, all governments tend to give high priority to the export competitiveness of firms. This notwithstanding, the region has recently been experiencing declining export competitiveness, which has led to slower growth of exports and even a reduction in the overall number of products being exported. A review of the literature has shown that most of government policies are focused on creating the most favourable macroeconomic environment possible for business (e.g., tax free zones), but little attention has been given to business level or internal drivers of export performance. The research questions underpinning this study are: what are the business capabilities impacting the export performance of Caribbean manufacturers?; what are the mediating effects of organisation learning on changes to export performance?; and what are the differences in the interrelationship between firm capabilities, organisational learning and export performance for different groupings of Caribbean manufacturers?

This study will look to provide a greater understanding of how internal factors such as business capabilities and organisation learning impact export performance of Caribbean manufacturers. Specifically for this, business capabilities will include market linking,

marketing, technology, information communication technology and management capabilities. Meanwhile organisation learning will consider how Caribbean firms acquire and use learning to help sustain export performance. As all firms are broadly different, export performance will not only be examined globally but also disaggregated or partitioned to glean a more detailed understanding of firm behaviour by groupings. A quantitative research approach, deploying structural equation modelling, will be used to test the project hypotheses. Data will be collected through mail/online survey.

This study will look to make a contribution to the wider understanding of how internal factors influence the export performance of Caribbean Manufacturers. Policy makers and export professionals will be provided with a structural model that brings together elements of business capabilities, organisation learning and export performance. Additionally, the study will lend credence to the view that more recognition should be given to business groupings in policy development and practice as varying groups may rely more or less heavily on certain capabilities. Crucially, this disaggregated view of export performance based on business groups should enable a better measurement of performance.

Ethical issues:

- Participants to the study will be randomly selected from a sample frame of export manufacturers in the Caribbean. Due to the relatively small number of export manufacturers in the region, all companies in the sample frame will be contacted. This is to enable me to achieve as high a response rate as possible. The study will be a census giving each participant an equal and measureable chance of participating in the study.
- Participants will be provided with an information sheet and consent form together with the link to the survey. As the survey is online, participants will be asked to tick a box to indicate that they have read and agreed with information sheet and consent form.
- The questionnaire will not ask respondents to provide individual information. Where they provide their company name, this information will be excluded from the dataset for analysis. Open-ended questions will also be reviewed to determine whether they contain information that could be used to identify any individual or company. With regard to confidentiality, all data sets will be password protected with only the research team (i.e., student and supervisors) having access. The data from the study will be held indefinitely but reviewed after ten years to determine whether they remain valid and if not, securely destroyed.
- Participants, through the information sheet and covering letter, will be informed that their participation is voluntary and that they can withdraw from the process at any time including asking for their data/information to be deleted up until it is used in the final thesis report and articles.
- Noteworthy, participants to this study are expected to be largely professionals with university degrees who hold senior roles within their organisations. As a result, they can be considered as a very low risk or non-vulnerable group.

Through the electronic submission of this form you confirm that the proposed project conforms to College ethical guidelines as set out in the College Guidelines on Responsibilities and Procedures for Ethical Review available at: http://www.bbk.ac.uk/rgco/policy/Respons%20&%20Procud%20Ethic%20Review%20Oct10.pdf

Only commence with the research after the Department's Ethics Officer has provided formal approval of your project in the online feedback box in Moodle.

Consent Form

Department of Management

Please read the following before participating in this research:

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand I have the right to withdraw from the study at any time and to decline to answer any particular questions.

I agree to provide information to the researcher(s) on the understanding that my name will not be used without my permission. (The information will be used only for this research and publications arising from this research project.)

I agree/do not agree to the interview being taped.

I agree/do not agree to the interview being video-taped.

I understand that I have the right to ask for the audio/video tape to be turned off at any time during the interview.

I agree to participate in this study under the conditions set out in the Information Sheet

Signed by:

The researcher: ……. Date: ……
The interviewee: …… Date: ……

Information Sheet

The impact of past performance, firm capabilities and adaptation strategies on export performance: the case of Caribbean manufacturers

What is the purpose?
The study aims to examine the effects of business capabilities and learning on the export performance of Caribbean manufacturers.

Who is undertaking the research and in what capacity?
This study is being undertaken by Mr Glenworth Joseph. Glenworth is a doctoral candidate at Birkbeck, University of London.

Who is being asked to participate?
The target audience for this study are export manufacturers located in the English speaking Caribbean. These are Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Saint Lucia, St. Christopher and Nevis, St. Vincent and the Grenadines, and Trinidad and Tobago.
I obtained your contact details from your local manufacturer association and/or chamber of commerce. The Caribbean Export Development Agency provided me with a list of these institutions. As a result of the relatively small number of export manufacturers in the region, I will be contacting all companies. This is to enable me to achieve as high a response rate as possible.

What type of information is being collected?
The information being gathered is largely subjective, that is, you will be asked about your views on your firms' capabilities, learning and export performance. The last section of the questionnaire will ask some questions about the characteristics of your firm.

How will it be collected?
Participants are asked to complete an online survey. In a limited number of cases, participants will be handed a paper-based questionnaire to be collected at an agreed future date.

How much time will be required?
The questionnaire will take about 15 minutes to complete.

What are the target dates?
January to April 2016

What are the consequences or possible risks of taking part?
Participation in this survey is completely voluntary. If you choose to take part you will need to agree to the consent form which accompanies the survey. You are able to end your participation at any time as well as withdraw any data or information you may have already provided up until it is used in the final report and articles.

Who will have access?
Only individuals with direct link to the study will have access to your anonymised information.

How will the data be presented?

The results or data from the survey will only be presented in aggregated form. This means that individual comments will not be presented in the report or publications. In the event that data on subgroups of participants are used, they will contain a minimum of 30 cases to both ensure statistical robustness and maintain anonymity.

How will the results be disseminated?
The results from study will be disseminated through Glenworth's PhD thesis, journal articles, conferences, seminars and workshops.

What assurance can be provided about anonymity and data confidentiality?
The survey instrument will not ask for respondents' names. It will only ask for company name, but that information will only be used to ensure that reminder emails are not sent to individuals who have already responded. The company name will be excluded from the dataset used for analysis. In order to further preserve anonymity, the results will be presented in aggregated form or reported on as a group. Where there are subgroups, they will contain no fewer than 30 cases as indicated above. Apart from this being the statistical robust approach, a small number of individuals in any grouping can risk individual firms being identified due to their unique set of circumstances (e.g., a combination of their location, size and sector).
All information collected during the course of this study will be kept strictly confidential. Information will be stored on a password-protected computer and data file. All personal information such as company name and any other revealing comments made in the open questions will be removed from the data file and will not be shown to anyone outside of the study project team. When the results of the study are published, no references will be made to individual companies.

What will happen to the data after the project is completed?
The data from the study will be preserved beyond the end of this project for the purpose of future analyses and publications. After ten years, a review will be conducted to determine whether they remain valid and if not, securely destroyed. During this time, the unanalysed or raw data will not be shared with anyone outside the research group.

Where data are to be preserved?
The data will be stored on Birkbeck, University of London servers and Glenworth's personal computer and storage devices. Files will be password protected at all time.

What are your rights?
Participation in this study is voluntary. You can withdraw from the process at any time including asking for your data/information to be deleted from the study up until it is used in the final thesis report and articles.

Who do I contact if I have a question?
In the event of any questions, please contact Glenworth Joseph by email: gjosep05@mail.bbk.ac.uk.

Appendix 8 Skewness and Kurtosis Test

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
mktlk1	274	1	7	5.30	1.10	-0.73	0.15	0.93	0.29
mktlk2	272	1	7	5.69	1.02	-0.79	0.15	1.27	0.29
mktlk3	269	1	7	5.70	1.05	-0.76	0.15	0.96	0.30
mktlk4	271	1	7	5.46	1.13	-0.82	0.15	0.91	0.30
mktlk5	264	1	7	5.44	1.12	-0.74	0.15	1.18	0.30
mktlk6	266	1	7	5.30	1.10	-0.64	0.15	0.67	0.30
tech1	270	1	7	5.34	1.19	-0.98	0.15	1.29	0.30
tech2	268	1	7	5.60	1.07	-1.13	0.15	1.85	0.30
tech3	270	1	7	5.26	1.27	-0.94	0.15	0.57	0.30
tech4	271	1	7	5.26	1.21	-0.91	0.15	1.30	0.30
tech5	274	1	7	5.20	1.26	-0.86	0.15	0.78	0.29
tech6	265	1	7	5.59	1.08	-0.94	0.15	1.41	0.30
tech7	272	1	7	5.73	1.12	-1.05	0.15	1.65	0.29
mkting1	274	1	7	5.20	1.20	-1.12	0.15	1.76	0.29
mkting2	274	1	7	5.22	1.17	-1.14	0.15	1.79	0.29
mkting3	271	1	7	5.10	1.28	-0.89	0.15	0.68	0.30
mkting4	270	1	7	5.01	1.21	-0.78	0.15	0.44	0.30
mkting5	270	1	7	5.01	1.26	-0.81	0.15	0.57	0.30
mkting6	272	1	7	4.98	1.23	-0.64	0.15	0.27	0.29
mkting7	269	1	7	4.99	1.23	-0.70	0.15	0.31	0.30
it1	269	1	7	4.88	1.35	-0.82	0.15	0.46	0.30
it2	272	1	7	5.02	1.24	-0.91	0.15	1.11	0.29
it3	270	1	7	4.87	1.28	-0.79	0.15	0.56	0.30
it4	272	1	7	5.30	1.25	-0.84	0.15	0.94	0.29
it5	273	1	7	5.33	1.20	-0.96	0.15	1.33	0.29
adapted1	267	1	7	4.22	1.81	0.09	0.15	-1.18	0.30
adapted2	270	1	7	4.38	2.00	-0.12	0.15	-1.40	0.30
adapted3	272	1	7	4.25	1.87	-0.05	0.15	-1.31	0.29
adapted4	269	1	7	4.30	1.83	0.02	0.15	-1.38	0.30
adapted5	265	1	7	3.97	1.74	0.16	0.15	-1.13	0.30
adapted6	272	1	7	4.07	1.78	0.10	0.15	-1.23	0.29
adapted7	274	1	7	4.08	1.73	0.06	0.15	-1.27	0.29
adapted8	271	1	7	4.32	1.75	-0.05	0.15	-1.25	0.30
adapted9	269	1	7	3.94	1.70	0.12	0.15	-1.13	0.30
experfc1	269	1	7	4.69	1.54	-0.83	0.15	-0.06	0.30
experfc2	272	1	7	4.61	1.56	-0.74	0.15	-0.12	0.29
experfc3	267	1	7	4.39	1.52	-0.56	0.15	-0.28	0.30
experfc4	270	1	7	4.41	1.54	-0.54	0.15	-0.35	0.30
experfc5	268	1	7	4.60	1.51	-0.62	0.15	-0.12	0.30
experfp1	271	1	7	4.61	1.47	-0.72	0.15	0.04	0.30
experfp2	269	1	7	4.62	1.52	-0.57	0.15	-0.26	0.30
experfp3	268	1	7	4.54	1.52	-0.66	0.15	-0.17	0.30
experfp4	265	1	7	4.58	1.53	-0.64	0.15	-0.16	0.30
experfp5	267	1	7	4.62	1.47	-0.60	0.15	-0.29	0.30
Experience	274	0	4	3.00	1.28	-0.77	0.15	-0.98	0.29

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
No. of staff	274	1	6	3.45	1.63	-0.11	0.15	-1.12	0.29
R&D Intensity	268	1	2	1.40	0.49	0.41	0.15	-1.84	0.30
Market type	274	0	1	0.28	0.45	0.96	0.15	-1.09	0.29
Internationalisation	274	1	7	3.15	2.04	0.79	0.15	-0.66	0.29
Valid N (listwise)	274								

Appendix 9 Univariate Outliers – Z-scores

	N	Minimum	Maximum
Creating and managing durable customer relationships	274	-4.61	1.29
Creating durable relationships with your suppliers	274	-4.54	1.25
Manufacturing processes	274	-4.34	1.30
Creating durable relationship with channel members such as wholesalers and retailers	274	-4.03	1.39
Retaining regional/international customers	274	-3.99	1.37
Generating knowledge about consumers, competitors and channel members for decision making	274	-3.90	1.56
IT systems for new product development projects	274	-3.68	1.39
IT systems for external communications (e.g., suppliers, customers and channel members)	274	-3.63	1.40
New technology acquisition	274	-3.53	1.44
Knowledge of international competitors	274	-3.50	1.50
IT systems for internal communication (e.g., across departments and different levels of the organisation	274	-3.45	1.37
New technology development	274	-3.40	1.37
Prediction to changes in technology in your industry	274	-3.35	1.43
Integration of marketing activities	274	-3.33	1.65